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THE Chemist

JUNE, 1945 VOLUME XXII, No. 6

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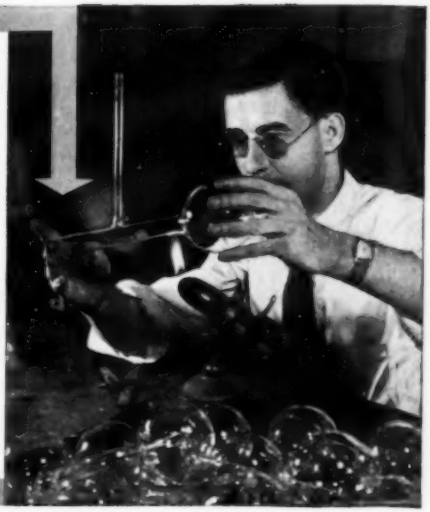
These Skilled Fingers Now Squeeze a Trigger...



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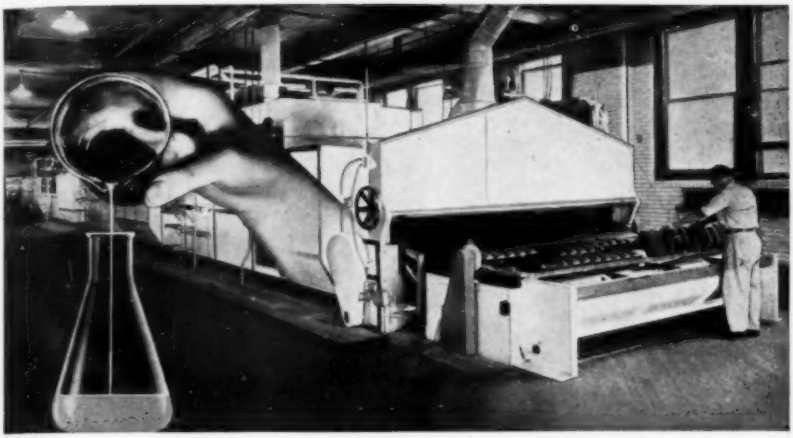

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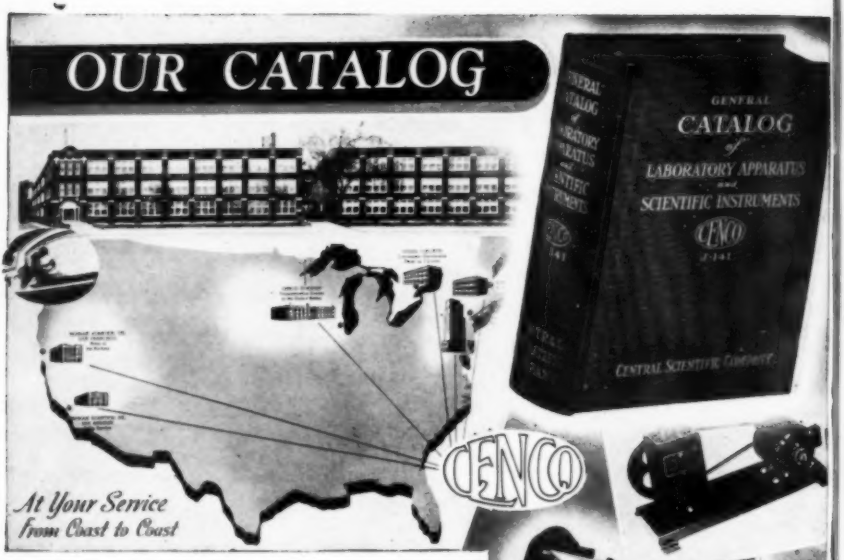

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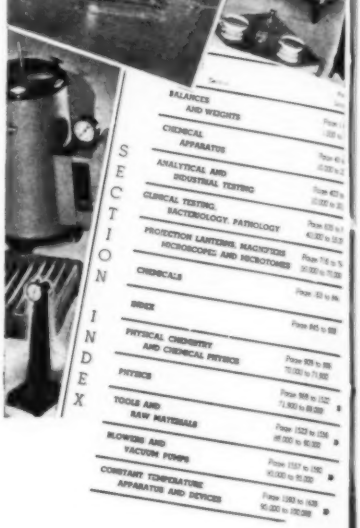
The arrangement differs from the conventional of alphabetical sequence without regard to utility relationships. Logical groups have been established, within which related devices and materials are closely associated for easy comparison and selection of items. For example, under Industrial and Analytical Testing is grouped special chemical methods such as gas analysis, micro chemistry, hydrogen ion, etc., and under Industrial Testing Methods are standardization agencies, petroleum, rubber, etc. Although emphasis is just on the index, related materials will be found on near-by pages.



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NEW YORK TORONTO CHICAGO BOSTON SAN FRANCISCO

The Chemist

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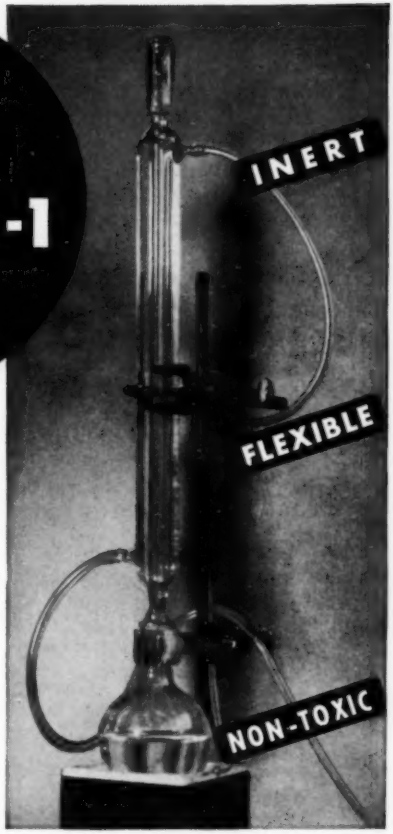

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Claisen's discovery was only the beginning. For his "Claisen reaction" might well have ended as an item in abstruse chemical journals had it not been for the American company which took his test-tube discovery and developed it into tank-car production.

Since 1919, U. S. Industrial Chemicals has been pioneering tonnage-scale production of a whole new series of chemicals based on "Claisen reactions".

Atebrin, the crucially needed substitute for quinine, for example, is the product of a chemical synthesis which starts with a Claisen reaction. Sulfadiazine, which is helping reduce soldier mortality, starts with two complex chemicals which U.S.I. combines by a Claisen reaction.

Vitamin B is now being synthesized in large quantity for use in army field rations. This manufacturing process again depends upon intermediates produced by U.S.I., via a Claisen reaction.

Postwarwise, perhaps the most interesting U.S.I. "Claisen" product is Indalone, whose unique insect-repelling properties will undoubtedly make it a fisherman's "must", come V-Day.

Claisen-type reactions are but one field in which U.S.I. research is everlastingly at work shaping new chemical "building blocks" for other industries, finding new end-products for a healthier and soon, we hope, happier humanity.

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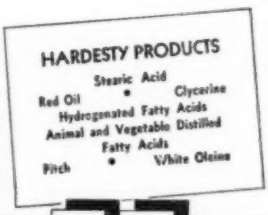

Our many years of experience in the chemistry of fatty acids is at your disposal. If you will write us we will be glad to have one of our technical representatives call upon you and discuss your problem.

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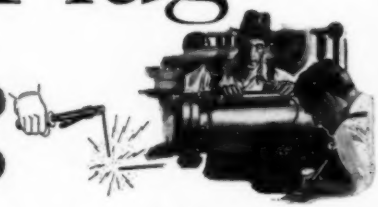

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The Penetron will soon be available for general industrial use.

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Acceptance Address

John W. Thomas

Chairman, The Firestone Tire and Rubber Company

On the occasion of the Presentation of the Medal of The American Institute of Chemists to him at the Miami Valley Chapter Meeting, Columbus, Ohio, May 11, 1945

Dr. Thomas (right) accepting the Medal from Dr. Gustav Egloff, President, A. I. C. Dr. E. L. Luaces, Chairman, Miami Valley Chapter, A. I. C. in in background.

DR. EGLOFF, members of THE AMERICN INSTITUTE OF CHEMISTS and honored guests; I am deeply appreciative of the high honor that is paid to me. In accepting it, I should like to pay tribute to all those men of science in the rubber industry who have contributed so much to the progress of civilization and towards ultimate victory in this war.

Probably never before in all history have scientists, and particularly chemists and physicists, accomplished so much in so little time as they have during the past five years. We have literally jumped a score of years

ahead. What ordinarily might have taken us no less than twenty years, we have telescoped into five years. Our men of science have met the crises of war with devotion and a remarkable outpouring of energy.

I hope I will be forgiven if I mention but one item upon which much of the success or failure of our war effort depended—the finding of a substitute for rubber that could be produced quickly and in great quantities. American scientists not only accomplished this near miracle, but they have given us not one but many types of synthetic rubber. It will take a number of years before we will be able to utilize fully these many tailor-made products of our laboratories.

Today our armies are cleaning up the last remnants of enemy forces in Europe, and we have the Japanese all but driven into their home fortresses. Our minds turn longingly, and with determination, towards thoughts of just and lasting peace. At this very moment statemen from half a hundred countries are meeting in San Francisco in a brave effort to find a formula that will outlaw war forever.

Unless that lasting formula can be found, and a world constructed that will produce a better way of life, we shall have failed the generations to come, and millions of gallant youths will have died in vain. Each of us must bear his full share of this responsibility. And for men of science this is especially true. The responsibilities of Science in the past are small compared with those it will accept in the future.

It is a sobering thought to realize that Science, in the World of Tomorrow, may hold the balance of power between peace and war—between human happiness and world tragedy. We can not escape the unhappy fact that in the past many of the great and permanent advances in science have been achieved through the demands of war. Few would deny but that science in Germany, for the best part of the last quarter century, has been directed into channels of preparation for this war of conquest and revenge. Both the German General Staff and the Nazi leaders slowly but definitely bent science towards producing substitutes for the raw materials Germany lacked. Then, once Hitler came into power, many of the finest of German scientific minds were set to work devising, inventing, developing new and monstrous weapons of destruction. Science was forced to accept roles far beneath its dignity and its true purpose.

Science made it possible for the warmakers and the mad dreamers of power to throw the whole world into holocaust. And there seems much of divine justice in the fact that Science, which made the war possible for our enemies, has now made victory possible for ourselves. The same

test tubes and laboratories, the same type of restless, imaginative minds, that were at the beck and call of these evil men, were later to be used on the side of justice, decency and ultimate victory.

Few men of intelligence and vision would now dare say that, "Science can go this far but no further." Rather, they would suggest, "There is nothing impossible for Science."

We are told by many learned men that the basic potential greatness of a country lies in its natural resources. We delude ourselves with the vain hope that if we deprive potential enemies of certain raw materials, we will automatically cut down their power of waging future wars.

If every nation could possess within its boundaries all of the raw materals it needs to live and to prosper, there would be little, if any, cause for wars. Many people think that such condition would indeed be Utopia, and yet I am convinced that we are slowly but surely approaching the time when this fascinating dream may, at least in part, become a joyful reality through the medium of scientific research.

After all, the highest goal of scientific research is to improve the lot of mankind. The man of research, therefore, plays an all-important part in the life of every man, woman and child. His enthusiasm for scientific investigation is boundless. He toils long hours in unknown fields, but he does not know the meaning of "it can't be done." He only knows that "it never *has* been done." Invariably, his objectives are attained after overcoming seemingly insurmountable obstacles, but his patience is rewarded when he brings to light processes and products which will benefit the life, health and happiness of his fellowmen. His greatness lies not only in his ability to discover undreamed of wonders, but also in his ingenuity and diligence in revealing to a skeptical world the true worth of his discoveries and in the fortitude which he possesses in following through to practical conclusion his new-found means to benefit mankind.

Who would argue, for instance, that someday Science will not be able to circumvent nature, to by-pass the unequal distribution of the world's supplies of essential raw materials? Who can say that within our own time and generations many of the unfulfilled needs of man will not be conceived in test tubes and laboratories, and then given actuality in factories and fields?

We have seen at our peril how German scientists answered the demands of the war makers for essential materials lacking within the borders of that country. Synthetic gasoline and synthetic rubber are classic examples. All of *that* belongs to the past, but who today would be so bold as to deny that science at some future time may produce synthetically a hun-

dred and one substitutes for other raw materials that may be lacking in one land or another? It is a fascinating thought to speculate on.

Men now living may well see the day when a nation's true hidden wealth will not consist of her natural raw materials, but rather consist of her men of science and their laboratories.

Most of us still live under the pressure of ancient fears of national improverishment, It is an old, old story. I remember well some of the gloomy prophecies made in my own boyhood. We were warned, for instance that our oil supplies for our kerosene might be shortly exhausted. We used then less than a thousandth part of the petroleum products we use today, yet we were fearful that soon it would all be gone. But only a few years later the vast oil fields of Texas, Oklahoma, California, and a half dozen other states were opened up. And we are well aware today that our chemists will find a way to produce gasoline and oil if those natural supplies are ever exhausted.

When the rubber industry started making pneumatic tires in any quantity it was common talk that the saturation point for motor cars would be one million. Yet some twenty years later America alone was turning out four million cars in a single year. I can recall vividly the days when a tire that would run five thousand miles was the goal of the rubber industry. Yet today it is no trade secret that we expect ultimately to produce a tire that will last a hundred thousand miles. And it may be made of a substitute for natural rubber.

Out of our indoor and outdoor laboratories of the future there will emerge the answers to many of the problems that have pursued mankind for centuries, bringing countless wars, death, misery, and destruction. In these inspiring laboratories there will be created untold resources for man's life and comfort. The list of those possibilities encompasses most of the needs and dreams of man. They are without limits, bounded only by man's imagination. They have to do with every phase of human life; they will create a brand new type of existence for man and his nations. And they will go far towards creating durable peace.

When we recall the many times that scientists have been able to duplicate or improve upon the marvelous works of nature, surely we can foresee the day when our scientists will give mankind almost complete independence of natural materials.

When that day comes, man may be able to build beautiful, comfortable, low-priced homes without forests, stone quarries, bricks or mortar, by using such materials as plastics, glass and other chemical combinations, the properties of which we are just beginning to learn.

He will be able to create more and

better foods which will result in improved health and thus extend his life expectancy.

He will be able to condition the air he breathes and control the temperatures he lives in, regardless of the climate or the weather.

He will be freed from the threat of diseases that have ravaged mankind since the dawn of civilization.

Through the miracle of television, people will see with their own eyes historic scenes taking place thousands of miles away.

Who can set limits on the marvels that Science will bring us; synthetic fibers as strong as steel and yet as light as magnesium; plastic that may clothe us and even house us. And who would care to prophesy what man may do in the vast, only partially explored field of electronics? Here is a whole new world in itself. In my own industry we are already putting to use this wonderful science for delicate, split-second control of vast amounts of electrical power.

I could go on and on outlining the possibilities of this fascinating World of Tomorrow. Of course it would be largely speculative, but I seriously doubt if I could exaggerate the possibilities of what the next fifty years will bring.

Reflect for a moment on how we lived and thought a short half-century ago—in 1895 to be exact. Everything that had to do with the world of electricity was in its swaddling clothes. There were hardly more than a hundred motorcars in all the world. Men tinkering with flying machines were thought to be unbalanced. None had ever travelled one hundred consecutive miles in a single hour. Motion pictures existed only in the brains of Thomas Alva Edison and a few dreamers. Medical science and surgery were still crude and uncertain. In all America there were less than a score of industrial research laboratories.

Any man speculating then on the world of 1945, would have been put down as a complete visionary had he prophesied one-quarter of the advancements this half-centry has brought. No five-hundred year period of history can begin to match these five swift decades.

Yet I truly believe that the next fifty years will bring changes and improvments in our way of life that will completely overshadow the great accomplishments of the past fifty years. Free minds of science will unlock the stubborn secrets of nature.

And this brings me to the kernel of my own philosophy. Permanent peace is the dream and pledge of all mankind. And Science may well be the chosen arbiter to bring this about.

We see in both the European and Pacific wars how the very horror of poison gas has neutralized and checked its use. Yet we all know that chemists have produced gasses far more deadly than those used in the

last war. But the threat of retribution has been too great for even the mad leaders of Germany and Japan to risk.

We may be sure that Science will continue devising and discovering weapons of destruction so all-powerful, so threatening and so certain, that men will never dare unloose them. Even fools will realize that death for all mankind would follow swiftly such a war.

This may be an unholy way for Science to help bring peace, yet peace will be worth any price we pay for it.

But there is another far greater and finer way. Out of our test tubes and laboratories will come an endless flow of new and better materials from which man can make the things he needs. It is a world of plenty I see unfolding before us.

Men and nations may in a few swift decades find the secrets of how to make and build the good things of life for all. Science holds the key to this happy future.

And when mankind needs no longer to be envious, jealous and angry because one group or Nation has less than others, then the fundamental cause of war may disappear forever. Science can show the way.

So it is that I look towards the world ahead with eagerness and high heart. We are on the threshold of a mighty evolution, not a revolution, in our way of life. The speed of this change will depend largely on the intensity and earnest application with which our free and untrammeled scientists pursue their work.

We are living in a world that daily grows smaller. It can become a good world, a beautiful world—a peaceful world. Science will have a large part in its creation.

New Councilors Elected

THE AMERICAN INSTITUTE OF CHEMISTS, by mail ballot, has elected the following new councilors for three-year terms expiring in May, 1948: Dr. Norman A. Shepard, chemical director, American Cyanamid Company, New York, N. Y.; Dr. W. D. Turner, assistant professor of chemical engineering, Columbia University, New York, N. Y., and Dr. James R. Withrow, professor and chairman, Chemical Engineering Department, the Ohio State University, Columbus, Ohio.

Illinois Registration of Chemists Bill

At the time of going to press, Illinois House Bill 719, "An Act to Regulate the Practice of Professional Chemistry," will probably be tabled by the Illinois Legislature. A complete report will apear in the next issue of The Chemist.

John W. Thomas – the Man

Dr. H. E. Simmons
President, University of Akron

IT has been my good fortune to have known Mr. John W. Thomas for the past forty-two years; first, as a fellow student and fraternity brother; second, as a fellow chemist; third, as chairman of the Board of Directors of the University of Akron, where I was professor of chemistry and later president; and fourth, during all these years as a friend. It is from these stations of observation that I sketch Mr. John W. Thomas, "The Man."

To obtain a true perspective of a person, it is necessary to review briefly his early life and family tradition, the environment in which he grew. His father was a Welsh coal miner who settled on a farm in the beautiful New England type village of Tallmadge, Ohio, located five miles east of Akron. There were eight children born to this Welsh miner, six sons and two daughters. It was on this farm that your honored guest learned the first lesson essential to success: namely, the virtue of honest work, and the value of money in terms of the hard work necessary to procure it. Anyone who experienced the life of a farmer during the panic of '93 and came out with his farm, knows what I mean.

Here he learned the lesson of thrift,

DR. H. E. SIMMONS
Speaking at the Medal Award

developed an abiding faith in that "as you sow, so shall ye reap," and a hope for the fruitions of labor.

As a child he attended a one-room school until he was seventeen years of age. The work on the farm, however, made his school term short, because he could not start until the fall work was done and he stopped in

the spring when the planting season opened. In spite of these discouraging conditions his school work was so outstanding that his teacher prevailed upon his parents to allow her to take John to Akron and give him a chance to take the Boxwell examinations. If successful in this, he could go to a high school in the State of Ohio and his tuition would be paid by his township.

Miss Weber, his teacher, took him to Akron, he took the examinations, and she returned him to his home that night. When the results of the examination were announced, he had passed with the highest grade in the county. He exercised his right under this law to enter the Academy of Buchtel College in the fall of 1897, and graduated in 1900. His record had been so outstandingly high that Dr. A. B. Church, President of Buchtel College, awarded him a scholarship in the college. Here, under the instruction of Dr. C. M. Knight, he started his career as a chemist, and from here he graduated with high honors in 1904.

A quote from the college paper, *The Buchtelite,* of June 30, 1904, was indicative at that time of the future success of this young man. "The class day exercises were held at 9:30 a.m., Monday, and were highly successful and well attended." The program shows that the Class Address was given by the class president, John W. Thomas (a president at that time), with this comment: "Every number on the program was exceptionally well given, and the address of President Thomas was one of the finest ever given by a class president at Buchtel."

This same issue of the college paper carried the title of the thesis which Mr. Thomas submitted as one of the requirements for graduation, "Summit Lake Water and White Pond Water." Little did he realize at that time the value of that undergraduate research and its significance in connection with a source of water for the Firestone Tire and Rubber Company.

The college records show that he was a junior in college before he ever participated in athletics, and he was elected captain of the team in his first year of competition. It is recorded further, "That in the first football game of the season, with Mount Union at Alliance, Buchtel lost 10 to 0. The feature of the game was a 70 yard run by Brown, assisted by Swanson and Thomas. Swanson opened a big hold, and Thomas and Brown plunged through. Thomas did some excellent work in interference, while Brown sped down the field for a splendid gain. Captain Thomas received a broken nose, a black eye, and a badly scratched face. In spite of the fact that his nose was broken in the first part of the game, he played a great game to the finish."

From the record it could be inferred that he had poetic as well as

musical aspirations, for on Tree Day, May 22, 1902, he gave the class poem, and on one other occasion, he entertained the faculty as a member of the quartet.

With all of this extra-curricular activity, including the ten mile walk every day to and from home to college, and the morning and evening chores on the farm, he made a record in the classroom of "excellent" in practically every course taken.

These experiences in John Thomas' life, up to the time of his graduation in 1904, endowed him with certain attributes and strength of character which have contributed to his unusual success. He learned to work, he learned that sacrifices must be made, that only your best efforts are worthy of your time, that honesty alone pays dividends, that a Christian life is the foundation of a useful and happy life, that looking back gives one personal satisfaction only when one reviews his life from accounting the tasks well done, that the really great challenge always is in the future.

Two of his college professors in particular left a permanent transfer of personality upon him. Dr. Carl F. Kolbe, his German professor, in addition to teaching him that language, subjected him to the stern realities of discipline and directness. He would bring a student to task by saying "Immer den Nagel auf den Kopf." (Always hit the nail on the head), or "Nicht wie die Katze um den heissen Brei." (The cat goes around the hot broth).

Dr. C. M. Knight, professor of chemistry, was a New England gentleman and all that implies: gentle, considerate, sympathetic, scholarly, neat, soft spoken, never emotionally disturbed, and a marvelous teacher. To this day you can see the influences of these two men on Mr. Thomas.

When he left the college in June of 1904, he entered the employ of the B. F. Goodrich Company as a chemist, under Mr. A. E. Warner, who was graduated from Buchtel College in June of 1903, and who was the chief chemist for that company. I can well remember my first visit to the laboratory where these two men, both in their shirt sleeves, were diligently at work. The laboratory and equipment would look strange to you today. At that time practically all of the rubber consumed was wild rubber, and varied greatly in resin content. The percentage of acetone extract was determined on all batches and some of you may remember the Sohlet apparatus used for that purpose. It required a man to stand on a step ladder to put in place the Liebig condenser used to reflux the acetone used in the extraction. There I saw Mr. Thomas wrestling with this equipment.

He had developed the scientific approach in his college training and he has used it on all problems, whether these were chemical, financial or administrative ones. If you should go

into his office today and take a chair in front of him, you would be faced with a card which reads:

What is it?
How do you know it?
What of it?

Surely that represents a scientific approach.

Every research project is initiated by the question "What is it?" and steps taken to outline a program of investigation. "What do you know about it?" represents the search and experimentation for collecting the data which has a bearing on its solution. And "What of it?" is the application and analysis which justifies the research and makes it of any value. Mr. Thomas applies this method to all of his problems and has made all of the Firestone organization conscious of this approach. It is sound.

In order to make an intelligent appraisal of the man you honor tonight, may I briefly recall to your minds what the rubber industry was when he entered it in 1904, and by contrast, what it is today. Akron, the center of the rubber industry, had a population of approximately 45,000. There were probably five men in the Akron area who might be called chemists. There were about 22,000 autos in use in the United States, if you counted the gas, electric and steam propelled.

In 1905 the capital investment in the rubber industry was $46,297,537. All told there were 224 different establishments with approximately 21,000 wage earners, receiving $9,412,368 annually. The cost of materials used in the industry was $38,912,226, and the value of the finished products was $62,995,909. Contrast these figures with some of the present day. The population of Akron today is 300,000. In 1940 there were 27,434,979 passenger cars in the United States. From the annual report of The Firestone Tire & Rubber Co. of October 31, 1944, we learn that wages and salaries paid to employees amounted to $187,652,350; paid for materials, fuel, transportation, etc., $371,240,420; goods sold, $651,410,411. In fact, the taxes paid by the Firestone Company in this year were almost as much as the total value of the finished products of the entire rubber industry in 1905.

In 1908 Mr. Thomas came under the instruction and guidance of another shrewd, sagacious, farseeing, instructor, an entrepreneur in the rubber industry, Mr. Harvey S. Firestone. It was he who hired Mr. Thomas as his chemist and instructed him to equip and operate the first chemical laboratory for the Firestone Company.

That Mr. Firestone made a good choice, and had a brilliant student is proved by the rapid rise of Mr. Thomas from chemist in 1908; general superintendent of Firestone Plants, 1911; a director of the company, 1916; a vice president in 1919; presi-

dent, 1932; chairman and chief executive in 1941.

His constant emphasis on the advancement of the industry through chemical research has been a contributing factor to the progress made in the rubber industry for the past forty years.

Although his increasing administrative duties removed him farther and farther from the laboratory, he still continues to watch over the activities of his company's chemists. In fact, for several years, beginning in 1924, Mr. Thomas personally selected University graduates who were brought into Akron for intensive training in special classes, before being assigned to jobs in the organization.

And it is a tribute to his excellent ability in selecting men that last year when the first of these classes held in Akron a reunion commemorating the twentieth anniversary of its graduation, twelve of the original thirty-five members were still with the Firestone organization. In all, more than seventeen hundred have been graduated from these classes at Firestone. He was one of the first major industrial executives to consider research a major arm of business, and insisted that the chemical budget was just as important to the growth of a company as the sales budget. He has seized upon each chemical development of his industry as evidence of the need of greater emphasis upon chemistry in the improvement of techniques and processes for the manufacture of products made from rubber, metals, textiles and plastics.

He gave his full support and encouragement to the war time synthetic rubber program and his faith in the future possibilities for synthetic rubber. This faith is not expressed in just word service with him, but in action. Under his direction and supervision there has been built in Akron, and it will be dedicated in the near future with ceremonies appropriate for the occasion, The Firestone Research Laboratory, at a cost of $2,000,000. It will be equipped with all the modern apparatus and tools known to science today, which have any bearing upon the solution of the problems in the diversified rubber industry of our time. So that he may not be separated by his administrative duties from chemical research, he has established an office for himself in this new laboratory. It is a real monument to the farmer boy who in a small college, under good professors, developed a love for chemistry and an appreciation for its worth to mankind.

In 1913, Buchtel College, by action of its Board of Trustees, conveyed the institution and all of its assets to the City of Akron, and thus became a municipal university, under the laws of the State of Ohio. In November of 1919 Mr. Thomas was made a member of the University Board of Directors. In 1926 he was elected chairman of the Board of Directors

and served in this office until his resignation in 1942, a period of twenty-three years, sixteen as chairman of the Board. He gave wise counsel and diligent attention to the University. During his tenure on the Board, the University changed from one with an enrollment of 827 to 5,291. During Mr. Thomas' term of office two very useful buildings were added to the University plant, and the complete control and management of the Guggenheim Research Institute was taken over as a division of the Engineering College. In recognition of his achievements in the industrial world, and his service to his Alma Mater, our Board of Directors will confer upon him the honorary degree of Doctor of Science at the commencement convocation June fourth of this year.

That other young men may have the benefits of a college education under perhaps less strenuous conditions than those which he had to face, Mr. Thomas is creating four scholarships for Boy Scouts. The character of the man is truly reflected in the conditions which he has established for the eligibility of Scouts to compete for these awards.

His humanitarian spirit is exemplified in his service on the Board of the Akron City Hospital. This is not with him just a perfunctory service. He serves. Characteristic of the man, he will not permit his name to be identified in any official way with an organization unless he is able to give it attention and help.

His days are organized on a schedule that makes every moment productive. He arrives at his office an hour ahead of the opening of the general offices, and remains after closing hours. In the minds of many people "J. W." is at Firestone all the time.

THE AMERICAN INSTITUTE OF CHEMISTS brings honor to its own organization when it recognizes and pays tribute to Mr. John W. Thomas.

Scarcity of Scientists Foreseen

R. J. Dearborn, president of Texaco Development Corporation, recently declared that the postwar expansion of industrial research will be limited by the scarcity of scientific men. The war has prevented the normal flow of trained men from the colleges, and this flow can not be resumed until 1950.

In the meantime, the Government itself may be a competitor of industry for scientific personnel. Research expenditures, both public and private, before the war were estimated at $250,000,000 a year, $50,000,000 of which was spent by the Government. More than $600,000,000 is now being spent yearly by the Government for research in its own laboratories or through contracts with private organizations and educational institutions.

John W. Thomas—Chemist and Administrator

Col. Bradley Dewey

President-Elect, American Chemical Society

(Left to Right) Dr. H. E. Simmons, Dr. Gustav Egloff, Dr. John W. Thomas, Dr. E. L. Luaces, and Col. Bradley Dewey, at the Medal Presentation.

TODAY we are living in an era when the leadership of the chemist and engineer is taken for granted. Gone are the days when chemists were pictured as long-haired, impractical introverts playing with test tubes and retorts. Today's leading chemists include leaders of business, leaders of education, leaders of our war effort—men who wrestle with the complexities of finance, selling, and economics as well as turn chemistry to the benefits of mankind. In fact, some of the chemists dream that their big job of the future is to make chemical reactions work so that, while we are ever prepared against more deadly war, the fruits of chemistry will destroy the causes of war. And yet we are less than two generations away from the time when it was axiomatic that no chemist could ever be practical enough to be a man of affairs and run a large business.

We are here tonight to honor one of the men who was big enough to

break down these barriers and to show that a technical education, based upon orderly thought and reasoning from observed facts, is the finest possible training. Upon his chemical training, John W. Thomas built his leadership of one of the country's largest, most successful and most highly diversified companies — a company which has been a mainstay of America's Arsenal of Democracy. Dr. Simmons has described the early life and personality of this man who was big enough to do this. Now let us look at him from another side, guided by the text "By their fruits, yet shall know them".

The first time I met Mr. Thomas he was with the late Harvey Firestone, Senior. It was at that meeting that Mr. Firestone made a statement which is now almost commonplace but which then left a great impression. He said, "All I want in business is to be the low-cost producer. The low-cost producer need never fear." At that time it was Mr. Thomas' job to see that the company was just that.

From then on I was ever glad to know more of the philosophy and men who made up Firestone. My next two contacts were to show me that, while the Firestone Tire and Rubber Company feared neither man, beast nor devil, they were absolutely straight-shooting and willing to talk over the equities of a business situation, whether in the field of patents or other business problems, with that same objectiveness with which a chemist analyzes the data from his experiments. As Mr. Thomas took over the mantle of Mr. Firestone, I began to be more conscious of the objectiveness of his thinking and his actions and I have never ceased to admire the directness of his approach to problems. He hits so hard that, if it were not for the absolute forthrightness and deliberate, downright honesty of his approach and purpose, fear would have replaced respect and we would not have the Firestone Company of today. But, because of his insistence that men know what their problems are, what they must know about them, and what they must do to solve them, he has built up around him an organization which has shown ability to tackle a tremendous variety of problems and to handle them all with dispatch.

Everyone knows the place of the Firestone Tire and Rubber Company in the rubber industry, but how many appreciate that under John Thomas' leadership it has for years been a large worker of metals as well as molder of plastics and maker of textiles and that it was its experience in all of these fields which enabled it to make not only rubber products and synthetic rubbers but also a host of other tools of war that have whipped one enemy and will soon finish off Japan. But even then only a beautifully staffed organization could have afforded the supervisory and engineering talent necessary to the construction and op-

eration of one of the country's most successful and lowest priced units for the manufacture of Bofors Anti-Aircraft guns, not to speak of an almost unique operation for the manufacture of stainless steel shatter-proof cylinders to carry the high-pressure oxygen that permits our airmen to fight and bomb almost above the reach of enemy anti-aircraft fire.

We could expect it to make rubber self-sealing fuel cells, special airplane tires, rubber boats, gas masks, barrage balloons, life vests, and pontoons but it took a knowledge of other industries to manufacture tank tracks, helmets, tank turrets, and airplane seats. While doing all this it still had power enough to make a host of other more or less standardized war materials. How was it able to do these things? Because an organization built by Thomas around teams of scientists and engineers was used to working together cooperatively and to a common end. Its research laboratory is not a thing apart but a living organ of the company. It is a reflection of Thomas in action.

To Thomas, research is not a novelty—not a new and fascinating toy. Nor is it a cynical luxury supported to produce advertising braggadocio. Under Thomas, Firestone chemists, physicists and engineers are an integral, a living part of Firestone. Teamed together with men of business and skilled workers, they are Firestone. They are the soul, the brain, the blood itself of Firestone.

Although Firestone had pioneered in the development of the rubber plantations in Liberia which have been so all-important in furnishing this country with nearly 50,000 long tons of high-grade plantation rubber since Pearl Harbor, John Thomas was among the first to recognize that ultimately chemistry is destined to make man-made rubber of better quality and lower cost than that which can be wrung from Mother Nature in tropical lands which are never more than 10° on either side of the equator, in countries highly vulnerable to the impact of war and dependent upon native labor. Mr. Thomas shares with other scientists the enduring faith that chemists will tailor-make the synthetic rubbers, or shall we play highbrow and say "elastomers and plastics", to the specific jobs they have to do. His record of making his dreams come true should give the statesmen of the future who have to deal with these problems, great confidence that their way is well charted.

Mr. Thomas knows that the future of synthetic rubber is bright indeed. He knows that continued research will result in better synthetic rubbers at lower than natural rubber prices. To him, the huge synthetic rubber industry, which has grown up as a result of wartime necessity, is the best guarantee of our country's rubber independence and the best assurance of stabilized natural rubber prices. That

is why John Thomas is one of America's foremost advocates of continuing operation of a substantial part of our synthetic rubber plants, even after natural rubber becomes available again in plentiful quantities.

If the statesmen will only look at the blueprint which Thomas and his enlightened colleagues are so eager to show, they will see that in the continued operation of a substantial part of our wartime synthetic rubber industry there lies our only guarantee against some future disaster. Moreover, Thomas and his colleagues of rubber are ready to point out that a goodly synthetic rubber production after the war offers not only the best but our only means of stabilizing the prices of all rubber, a matter of vital concern not only to rubber companies and automobile makers but also to the farmers, the workers and the merchants who make up our country,—a country which in the words of the Baruch Committee is "geared to rubber".

And while I am on the subject of synthetic rubber I want to get one thing on the record bluntly, frankly and with no chance of misunderstanding. The rubber industry of the United States, large and small and aided by the chemical and petroleum industries, made possible the prosecution of this war. Without its wholehearted, complete cooperation we hardly could have gone to war, let alone have carried it on. I have no criticism of any rubber company; I have praise for every rubber company including those whose contribution was that of reclaiming rubber or making camelback for retreading. What I say of this cooperation I would as truthfully and readily say about any Firestone competitor did the circumstances permit. Every rubber company, small and large, gave as fully as it could to the nation's rubber program. Some had more to give than others. Firestone was one of those who had much to give. They gave it freely and without stint.

In bringing the country to its present wartime independence of rubber from the Far East, Thomas' organization cooperated not only in pooling all information in connection with synthetic rubber but it also helped design the Government copolymer plants which are now capable of turning out synthetic rubber at the rate of 900,000 tons per year. With other leaders, it turned over to the industry for use by its competitors and those who had never before made heavy duty tires, all of its expensively bought manufacturing know-how, secrets and test information on heavy duty truck and bus tires. His organization is an important part of an industry which deserves the country's thanks.

Under Thomas, Firestone's part in this war was not limited to the manufacture of goods. On the second day after I was given the job of organizing the Office of Rubber Director

as Mr. Jeffers' Deputy, I took a plane and flew to Akron. Others were helpful beyond my fondest hopes but John W. Thomas said without qualification of any kind "You can have any man you ask for". When I asked for E. B. Babcock, the head of all his technical activities, he blinked but said, "He's yours." Through Babcock as assistant rubber director, Firestone gave not only knowledge but leadership. Some day I'd like to make a speech about Babcock and what he did.

And even today, despite all of the company's manufacturing problems incident to the tremendous new program for Army tires, we find his vice-president in charge of manufacturing, J. E. Trainer, in Washington helping to unravel the problems of other industries in order to get the carbon black and rayon tire cord necessary if the ample supplies of synthetic rubbers, which Firestone efforts have helped to make so available, are to be effectively utilized in the last phases of this war.

So much for some of the factual background. But I cannot close without interjecting a little more of my own thinking as to some of the other policies which make his leadership great. Despite a very different background of the past, we find in his company a progressive, hard-hitting patent department which knows the art of today but which is chiefly interested in making sure that the Firestone Tire & Rubber Company is free to go its way without interference or paying undue tribute. It is not primarily concerned with building up a complicated patent structure. Mr. Thomas is obviously following the Firestone doctrine that the low-cost producer need not fear. If the taking of a license from others makes him the low-cost producer, well and good. If not, it is up to his research department to find him another answer. Thomas believes that cleanliness makes for low-cost production and his plants reflect his insistence upon plant housekeeping. I have never heard anyone accuse him of wasting time upon needless detail but never have I talked with a man who is so insistent on knowing what those to whom he has delegated a job have done to complete it.

It has been my experience, especially as rubber director, that when you put a problem up to a top man he looks at it, calls in someone else and gives the job to him to do. Many then forget what it was all about. But not John Thomas. He delegates like nobody's business but he remembers what the problem was and to whom he has delegated it and he follows it up to see that they attend to it. When you see him later he asks you if the job was done satisfactorily. He knows what was done.

John W. Thomas is exacting of others and equally exacting of himself. Judged by his works he has made good for himself and for his company.

And in so doing he has made good for the chemist in industry. He is, as you must see, a goal and a target for some of us, and a road and a way for all of us toward better service for our fellow man. If you judge Thomas by his works, you judge him a fitting recipient of this great medal.

Medal Presentation

Gustav Egloff

President, The American Institute of Chemists

THE record of our medalist, John W. Thomas, is an inspiration to all of us. His achievements reflect the true spirit of a pioneer. Until the onset of the present war, all too few of us realized how vital rubber was to our mode of living. Mr. Thomas, however, has always been a man of vision and extraordinary common sense.

From the installation of the first chemical laboratory by the Firestone Tire and Rubber Company in 1908 to the present development of the synthetic rubber program, his contributions have been of a fundamental and far reaching character. Years ago this company undertook the scientific cultivation of natural rubber trees at its plantation in Liberia. At the same time it recognized the necessity for synthetic rubber and instituted research in this field. The ability of Mr. Thomas to translate the results of research into commercial reality has played an indispensable part in the success of our fighting forces. His leadership in the American synthetic rubber program is outstanding.

The new research laboratory constructed by the Firestone Company under his personal supervision promises new types of rubber far better than any yet produced in nature or the laboratory. The influence of Mr. Thomas will, indeed, bear even greater fruit in the years to come.

We are happy to honor a man who has coordinated his technical knowledge and administrative capabilities to give the world so much. He will be long remembered as one of the most prominent figures in stabilizing chemical research as an integral part of industry.

John W. Thomas, on behalf of THE AMERICAN INSTITUTE OF CHEMISTS, I am privileged to present to you the INSTITUTE'S Gold Medal Award for the year 1945.

Cooperation in Industrial Developments

D. B. Keyes, F.A.I.C,

Director, OPRD, War Production Board

Presented at the Miami Valley Chapter Meeting May 11th.

THE history of OPRD projects indicates that individual initiative was greatly intensified and problems were solved much more quickly whenever we had extensive cooperation among research organizations. This was particularly true when the problem involved was one of interest to many organizations; that is, a fundamental problem in which each and everyone was actively engaged.

There are those who felt that quite the opposite would occur; individual initiative would be stifled and individual efforts of a single laboratory or research organization would be less effective after this cooperation began. This idea is apparently based on the supposition that a research man is supposed to work best when all of the ideas are his own. There might have been a time when this supposition was true and when developments were in the hands of lone inventors or small groups of research and development men. Today, however, we recognize that no great development is the product of a single individual or a relatively small group of men. This means that cooperation is highly essential and especially in war-time when maximum speed is required.

Cooperation of this type is readily obtained during these days of stress when the need for new development for the protection of our country is evident to all, and especially to the technical world. The ambition of the average research and development expert is to accomplish creditable results and he is usually thoroughly familiar with the fact that individually he can do more if he has unrestricted cooperation with his colleagues. It makes no difference whether a research man is located in an academic or an industrial laboratory, his attitude is always the same. In war times the great incentive to accomplish results exists and financial considerations and even personal prestige become secondary matters.

We have many examples in the chemical field or what has actually happened in war-time as a result of this cooperation among research units. Our whole synthetic rubber program is an excellent example of this fact. It is well known today that the truly miraculous results that have been ob-

tained were obtained only because there was complete coordination and cooperation among large groups of investigators on this particular problem, not only within the industry itself, but also in universities.

The OPRD through its Chemical Industries Branch has had the privilege of coordinating the cooperative efforts in such fields as penicillin. The credit for the increased production of this miracle drug goes largely to the individual investigators within the companies themselves, but credit should also be given to the various university workers operating under OPRD projects for the benefit of the entire industry. Here, again, it can be truthfully said that without this coordination and cooperation we would not have had the necessary production of penicillin on D Day. It also can be said that each individual research man working in the various industrial laboratories has worked harder and more effectively because of this cooperation. This means not only the solving of the main problem of production of penicillin for our Armed Forces, but also increasing the production of each and every industrial concern.

It is true that certain concerns can make better use of the available research results than others because of particular experience and knowledge that the others do not have. But, again, it should be pointed out that although cooperation is more beneficial to some than to others, all benefit.

The effectiveness of the new insecticide, DDT, is familiar to everyone, but the story of its production on a scale necessary to meet the needs of the armed forces is not so well known. At the time when its effectiveness was recognized by the military, the production of DDT was in the hands of very few companies and not on a scale anywhere near adequately to meet the needs. It was felt wise to investigate quickly and thoroughly the possibilities of producing this chemical in various plants throughout the country. This job was given to the OPRD.

Men familiar with the production investigated facilities already existing in the plants which had shown willingness to cooperate in the program. The main question was whether or not the facilities already available in a particular plant were sufficient so that with a little help they could be arranged quickly to get into production of DDT. It is obvious that such an investigation should not be carried on by men from concerns already in production. Only OPRD operators with a knowledge of present production were in a position to make this investigation and recommend to the War Production Board the assignment of priorities, etc., for additional equipment in specific cases.

Again, even this would not have been possible had there not been cooperation between the Government

and existing plants. It was the willingness on the part of the present producers to help in the program that determined its success. The result of this cooperation was that our armed forces obtained the necessary and badly needed insecticide. It is obvious that the program was speeded up because of this coordination and cooperation, and lives of our fighting men were saved.

The OPRD in cooperation with the Northern Regional Research Laboratory of the Department of Agriculture was able to coordinate the development of a satisfactory means of obtaining vast quantities of alcohol from wheat at the time when corn became scarce and it was essential to change the raw material. Here, again, both industrial concerns and university laboratories cooperated to speed up the program of development and work out the many technical and scientific difficulties involved. It is quite possible that without this coordination and cooperation our alcohol production would have been at least six months behind schedule and our synthetic rubber program thus seriously affected.

About two years ago it became evident that the major source of our synthetic rubber would be alcohol and that this raw material would in turn be made largely from grain. It was felt that we would be in a precarious condition if we had a drought and our grain supplies were materially depleted. It therefore became necessary to consider the development of an alcohol process based on a non-grain source. A study of this situation indicated that the one non-grain source that would be feasible was wood waste and the best existing process for the conversion of wood waste to a fermentable sugar solution seemed to be the little-known Scholler-Tornesch Process utilized by the Germans.

The OPRD working with the Forest Products Laboratory of our Forest Service was able to obtain the necessary cooperation with industry so that a pilot plant could be built and operated. This was done, but still we did not have all of the necessary know-how quickly to design, construct and operate commercial units. The WPB recommended the erection of a large-scale commercial unit for this purpose. Such a unit might be considered an insurance plant as the data obtained from the operation of this unit would make it possible to reproduce these units at will and in a minimum length of time.

In this case, we not only had the complete cooperation of the Forest Products Laboratory and experts within the Forest Service, but we also had many experts in various companies who gladly spent their time and energies in developing the process to a logical and satisfactory conclusion on a pilot plant scale. We had, in addition, design engineers from industry who gave their time and made the

final study of the pilot plant results. In order to make the results effective, the reports were sent to many groups within the United States who were seriously interested in this process. Fortunately, no drought occurred last summer and it is doubtful that we will ever have to duplicate the commercial unit, but we do have the know-how so vitally necessary for the protection of our synthetic rubber program, and if and when the time comes that we need a substantial increase in the production of alcohol from a non-grain source, we feel certain that this production will be forthcoming in a reasonably short length of time.

There are many other outstanding projects of the OPRD, not only in the chemical field, but elsewhere, which have resulted in a real aid in our war effort and which would never have been brought to a satisfactory conclusion without this cooperation from literally thousands of individuals working in all parts of the country. It would have been physically impossible for the small full-time staff of OPRD to have accomplished a fraction of one per cent of the results already obtained without this attitude on the part of the technical world towards the particular projects.

Cooperation cannot be forced without disastrous results. Cooperation is limited mainly by the time factor involving the transfer of ideas. This is borne out in the typical large research organization. There is a tendency on the part of management in such organizations to subdivide the work and allocate specific portions of the problem to individual groups in order to eliminate duplication of effort and to use more effectively specialized talent. This is the way armies operate in which there is a definite allocation of work and a complete regimentation of labor. The modern method of shipbuilding clearly illustrates the effectiveness of this mode of operation. On the other hand, when it is applied to research, the law of diminishing returns soon sets in, owing to the fact that the full abilities of the individual research worker are not utilized.

It is possible and frequently occurs that a specialist working in a rather narrow field suggests the solution of a problem far removed from his particular field. It is true, of course, that his idea must be greatly developed before it becomes practical. Nevertheless, his basic idea may catalyze the practical solution of the problem, and without his suggestion considerable time may be spent by the experts in the other field before they happened to discover the most effective line of attack. In brief, regimentation in research and development does stifle individual initiative even though such regimentation seems desirable from the standpoint of coordinating the work of the group.

The OPRD as a coordinating organization has never regimented re-

search. On the other hand, it has permitted and encouraged a certain amount of duplication of effort with the hope that radically new lines of attack, which may prove far more effective than the one suggested, may come to light. The research director who actively directs research down to the last detail loses completely the use of the mentality of his men. Research men are not hired because of their muscular development but rather for their mental capacity and their knowledge.

Coordination of a research program by the OPRD is based on a transfer of information from one research organization to another so that the basic line of attack of the problem will be obvious to everyone involved. Cooperation between research groups then becomes a vital necessity. The OPRD does not direct the research and it does not regiment organizations and individuals. Its history proves this and amusing incidents have occurred which help to bring home the fact. For example, many of the successful research operators on OPRD projects when asked who in Washington directs their work reply—"No one, as far as I know. We are merely contributing our efforts to help in a problem of national interest." This is exactly the way it should be and only in this way can the necessary cooperation be obtained among research men to solve a fundamental problem on a national scale.

All our scientists and engineers need is an incentive and they are willing to give their utmost, many times without remuneration of any description. They must believe in the cause. Once they believe in the cause, all they ask is an opportunity.

Will there be any such incentive after the war is over? It is quite possible there will be, but whether it will be recognized or not depends largely on the attitude of those who are appointed to be responsible for the major research problems that have to do with the protection of this country and the prevention of future wars. This is a very grave responsibility and it should be remembered that in order to have any such plan function, it must be sold first to our scientists and engineers. It then becomes an educational program and one of no mean magnitude. Most of us who are connected with war work at the present time feel that it is very doubtful whether such a program can be sold, even to the technical people. It is certainly true that a research worker will not sell himself because in peacetime he forgets about war. We in this country have to wait until the house of cards comes tumbling about our heads before we are willing to give our all to a program of national cooperative research. It is hoped, however, that even though the law of probabilities is against it, some effec-

tive cooperative investigations can be carried on after peace comes.

It is also hoped that a proper selection will be made of the few problems that will be continued so that we may not be so unprepared at the start of the next war as we were in the last. It is felt by many of us that next time we will not have three years to prepare for the actual defense of our shores and it certainly behooves us to do our utmost to obtain the know-how of all major developments necessary for the prosecution of a victorious war.

Gustav Egloff, president A.I.C., completed the following speaking schedule in the Duluth-Superior Area: May 24th: Duluth Junior College, "Science and Technology in the War and Postwar", and Kiwanis Club of Superior, "New Things for More People"; May 25th: Radio talk, WEBC, Duluth, "Petroleum and the War", Duluth State Teachers' College, "The Scientist, Technologist and Engineer in the Oil Industry," and Duluth Engineers' Club, "The Engineer in the Oil Industry"; May 26th: Saturday Lunch Club, "New Things for More People", and Lake Superior Section, American Chemical Society, "Petroleum as a Chemical Industry." On May 22nd, he addressed the Will County Chemical Society, Joliet, Illinois, on "Petroleum in the War and Postwar Era."

Corning to Operate Canadian Plant

Corning Glass Works, Corning, N. Y., have completed negotiations for the purchase of a plant at Leaside, Ontario, Canada, for the manufacture of Pyrex brand ovenware. The plant being purchased from the Dominion Government is a portion of the plant formerly managed by Research Enterprises, Ltd. After reconversion, production is expected to start in the Spring of 1946.

In 1943, Corning purchased an interest in Cristalerias Rigolleau, of Argentina, and in 1944 acquired an interest in Vidraria Santa Marina, Sao Paulo, Brazil.

Present Pyrethrum Sources

The pyrethrum insecticide, so important to the armed forces in the Pacific areas, is largely obtained from British East Africa, Belgian Congo, and Brazil, from which imports since 1942 have been 13,000 tons. The Foreign Economic Administration is encouraging its production in Mexico, where 127 acres have been planted and 836,000 seedlings will later be transplanted. One hundred acres have been planted in Guatemala under this program, and Ecuador is expected to supply the United States up to 500,000 pounds of pyrethrum in the next three years.

Canada's Wartime Procedures For Technical Persons

H. W. Lea

Director, Wartime Bureau of Technical Personnel
Department of Labour, Ottawa

Read by Dr. R. J. Moore at Miami Valley Chapter Meeting, May 11th

SOME months before the outbreak of war in 1939, when an effort was being made to assess the scientific resources of Canada from a military standpoint, it become evident that little dependable knowledge was available with respect to the numbers, or special qualifications of our technically trained personnel. Realization of this situation led to the formation of a committee representative of the Engineering Institute of Canada, the Canadian Institute of Mining and Metallurgy, and the Canadian Institute of Chemistry (now the Chemical Institute of Canada), which set to work on the problem in consultation with officers of the Department of National Defence.

As a result, a voluntary survey was taken which brought together a considerable amount of data regarding the qualifications of individuals from the special point of view of their usefulness under war conditions.

DR. R. J. MOORE *and* DR. JOHN W. THOMAS *at Miami Valley Meeting.*

Later this information was transferred to the office of the Secretary of State, and finally to that of the Minister of Labour.

Having in mind the need of the armed forces, and of our civilian war effort for increasing numbers of technical persons, the three national societies mentioned above offered jointly to the Canadian Government the services of the Institutes, toward

the implementation of the desire of the Government to secure the most efficient use possible of the technical personnel of Canada in support of the war effort.. This offer was accepted, and in February, 1941, the Wartime Bureau of Technical Personnel was established under the Minister of Labour, with head office in Ottawa, and regional offices in key centres from coast to coast. From the first, all administrative officers of the Bureau, who have averaged about twenty-five in number have been professionally qualified engineers or scientists. The Bureau, having been established before National Selective Service and accompanying manpower controls were brought into being, has functioned since its inception as a special branch of the Department of Labour, adhering throughout to the broad principles of administration of manpower matters which have governed National Selective Service procedures in the wider field of utilization of labour generally.

Immediately that the Bureau had begun to operate, procedures were developed to secure and to maintain an inventory of all technical persons in Canada, complete within the limits of practicability. The first step consisted in sending questionnaires to all those 49,000 persons who, during the compulsory national registration of August, 1940, had classified themselves as engineers, architects or chemists. Within a short time, 28,000 replies were received, of which approximately 14,000 were actually classified as technical persons. This was followed by a systematic check of members of national and provincial bodies of professional engineers and scientists, and of science alumni lists of Canadian universities. Next, machinery for compulsory registration, while still undergraduates, of all members of graduating classes in science at all Canadian universities was set up, beginning with the class of 1942. In addition, many people have been registered as a result of contact through normal operations of the Bureau, so that at present, approximately 36,000 technical persons have completed the standard questionnaire, and from the information given, have been classified according to their various particular scientific qualifications.

With reference to the form of questionnaire which has been used, it should be explained that officers of the Bureau, at the very beginning, made an exhaustive study of forms which had previously been circulated by various scientific societies and public authorities in Canada, Great Britain, and the United States, and developed a record which it is gratifying to report, has served the intended purpose admirably for more than four years, without evidence of any significant change being desirable.

With registration under way,

attention was directed to the second fundamental function of the Bureau, that of referring to the armed forces, and to employers engaged in essential civilian undertakings, both governmental and private, records of education and experience of science workers qualified to fulfill needs which had been reported. Since the inauguration of this service, approximately 23,000 suitable technical persons have been referred in connection with activities more essential to the war effort than those in which they had been previously engaged. It goes without saying that this phase of operations has become increasingly important as the available supply diminished. In spite of every effort to cope with the situation, it has been many months since the supply has been sufficient to take care of all essential civilian demands, the present recorded shortage being of the order of 1,000 to 1,500 persons.

The advent of manpower controls with respect to employment added another function to those already being carried out by the Bureau, This is the administration of regulation regarding technical personnel set out by an Order-in-Council empowering the Minister of Labour to exercise control over the use of the services of every science worker in Canada by requiring, among other things, that a permit be secured before any such person can be engaged. The controls have two main objectives; those of keeping unnecessary changes of employment to a minimum, and of insuring that those which are made are in the general direction of higher labour priorities. Since manpower controls came into effect, over 14,000 permits have been issued, involving in each case a scrutiny of all the surrounding circumstances, including the essentiality of the needs of the employer the qualifications and availability of the employee, and the relative labour priority of the proposed activity. The fact that the administration of controls has been assigned to the Bureau is of the greatest assistance to the maintenance of a running inventory of Canada's technical personnel, and an accurate inventory may continue to be of vital importance in view of possible future needs for special skills during the reconstruction and rehabilitation periods after the war.

Additional administrative duties were assigned to the Bureau in December, 1942, with the passage of the University Science Students Regulations, under which all male university science students, of whom there are at present about 8,000, become subject to systematic allocations with due regard to the relative needs of the armed forces for technical officers, and of essential civilian services, governmental and private, for scientists and engineers. It has been a policy of the Dominion Government to encourage competent students in

certain university courses to complete their academic training to university graduation in order that this training may be used to further our war effort.

As a result, graduating classes at Canadian universities during the war period have averaged 1,700 per annum, of which 1,350 have been men and 350 women. During this time, an average of 1,200 professionally qualified persons per annum went from civil life to technical appointments in the armed forces, and some 500 technical persons either died or retired from productive activity each year because of old age or disability. The net total of technical persons available for civilian duties has therefore remained approximately stationary throughout the war.

In addition to the exercise of controls, the Bureau has provided facilities for efficient utilization of the technical skills of engineering and science students between academic sessions, by compiling lists of requirements of employers for such students for the summer, and circulating these lists to all universities. By this means, technical and scientific skills being acquired by the students are made available to the war effort, and practical experience of value to the completion of their studies and to their subsequent professional standing is gained by the students.

One of the most important services rendered by the Bureau consists of providing information and advice by both interview and correspondence through headquarters in Ottawa and all regional offices to individuals, companies, students, and government departments on the relation of technical personnel to the war effort. Officers of the Bureau have participated in over 56,000 interviews, and in addition, scores of thousands of letters have been exchanged. It is interesting to note that a substantial number of these contracts by mail involve technical persons, in the main British subjects, who are resident in the United States, the Latin American Republics, and countries overseas.

University matters first received attention early in 1942, when a visit was made to all Canadian universities by an executive of the Bureau, and by a scientific personnel advisor, for the purpose of formulating plans for efficient use of the services of potential persons enrolled in university courses in natural or applied sciences. Regular visits later became necessary in connection with the implementation of the University Science Students Regulations, and they have always been of great value in bringing direct to the universities and to the students authoritative information as to national needs, and the application of manpower controls.

Close liaison was early established with the various technical branches

of the armed forces, and it has been continuously maintained. A senior officer of the Canadian Army was seconded to the Bureau for full time duty in order to assist the three services to secure, at all times as needed, an adequate supply of suitable candidates for technical appointments. Effective liaison is maintained with other government departments, as well as with such organizations as the Inspection Board of the United Kingdom and Canada, the National Research Council, and others of like nature, while constant touch is also kept with Canada's major war industries.

Mention has been made earlier of the fact that the net total of Canadian science workers available for civilian duties has remained approximately stationary throughout the war. Because of this, it has been necessary to supply the needs of our civilian war effort by making use of the services of those normally employed in activities not essential to a wartime economy. It may be of interest to outline some typical examples of problems which have arisen, and the three which follow have been selected:

(a) The Meteorological Service of the Department of Transport has been recognized as an undertaking of such high essentiality that Navy, Army, and Air Force authorities jointly agreed to assist in recruitment and retention of its technical staff. Approximately 300 technical persons have been found for these activities.

(b) The National Research Council, in its own direct operations, has full support of the fighting services, and under an arrangement made by Defence Council, it is now impossible for a member of the staff of the first named body to be considered for a technical appointment in the forces if in the opinion of that body, his services continue to be required for research operations. The increase in activities of the National Research Council during the war period has required the services of not less than four hundred additional technical persons, and at times as many as five hundred.

(c) One of the organizations engaged in the production of chemicals and explosives, and in shell filling operations, which began soon after the outbreak of war, thereby requiring to be completely staffed with engineers and scientists, gradually increased activities to a point where as many as five hundred technical persons were at work at one time, and even yet numbers in the neighbourhood of this figure are employed.

To these examples might be added many others concerning not only projects which did not exist at the outbreak of war, but also activities which have been greatly expanded for war needs. Keeping in mind the manpower supply picture in the technical personnel field, it is obvious therefore that a critical situation would have

developed had not steps been taken to provide assistance to undertakings of high labour priority by curtailing activities in operations of low essentiality, and by encouragement of continuation of university work to the end that new reserves have regularly been made available from graduating classes.

A review of the technical personnel manpower situation in Canada during the war period shows that the needs of the armed forces for technical officers have at all times been met promptly and effectively, and that in essential civilian undertakings, although shortages have been inevitable, the steps which have been taken have been such that these have never become critical.

Now that the stage has been reached during which technical persons having completed their service in the armed forces are returning in larger numbers to civilian life, the Bureau has developed procedures aimed at assisting ex-service personnel to secure both suitable and satisfactory employment. Hundreds of employers have listed available positions which they have reserved for ex-service men and women, and these provide a selection of opportunities for those who, for any reason, do not return to their former positions, and to those who have never previously been employed. At the same time, assistance of a general nature is being rendered by consultation with various agencies engaged in the further development of plans for rehabilitation and reconstruction at national level.

The Wartime Bureau of Technical Personnel, as the name implies is a wartime undertaking, and consequently, it is impossible to predict what the future will bring when the need for manpower controls has ceased to exist in Canada. The inventory of technical personnel now assembled and kept current is an important national asset, and it seems highly probable that some effective means will be found to prevent the deterioration of this record, either by the establishment of a public national employment service for technical persons, or by joint action of national scientific and engineering associations toward the same end.

Chadeloid Corporation has been organized to take over the patent assets and outstanding licenses of Chadeloid Chemical Company in the fields of permanent wood stains, opalescent lacquers, and paint and varnish removers.

A central research and development laboratory will be established in Dayton, Ohio, under the management of Commonwealth Engineering Company. E. L. Luaces, F.A.I.C., vice president of operations for Commonwealth, will manage the research and development program of the new company.

What Licensing Has Done and is Doing for Engineers as Professional Men

H. E. Nold
Mining Engineer, Ohio State University, Columbus, Ohio

Presented at the Miami Valley Chapter Meeting May 11th.

THE legal justification for licensing engineers is "To safeguard life, health, and property." The mechanism is to provide by law for a board with legal authority to register or license as Professional Engineers persons who demonstrate to the board (usually by written examination) that they have the qualifications of education, experience, and character established by law as requirements for registration.

Persons who cannot meet the requirements for licensing are presumed either to be incompetent to practice engineering or morally unfit to do so. The legal object of this process is to protect the public from the results of incompetency and dishonesty in the practice of engineering. This, of itself, is justification for the registration or licensing of Professional Engineers.

To understand what licensing has done and is doing for engineers as professional men, we must examine what a profession is and how licensing reacts on our profession.

The main distinguishing features of a profession are:

First: A profession must be based upon a specialized body of technical or scientific knowledge not generally available to the people at large. This is clearly recognized in the laws providing for licensing of engineers in the several states.

Second: In order to do professional work, a person having a specialized body of knowledge must at all times be in a position to render uncoerced independent judgment.

Third: A profession must have a well-formulated and recognized code of ethics to which the members of the profession must subscribe and which they must pledge themselves to uphold.

The State Boards for the registration of engineers have formulated and adopted such codes of ethics to which, in a more or less formal manner, engineers are required to subscribe as a condition of licensing. The several state codes today vary somewhat as to details, but conform

rather well as to principles. Efforts are being made to develop a national code of ethics which will be adopted in all states.

Fourth: A profession, in order to exist, must render a real needed service to society. That engineering does this, is obvious.

In the United States the Engineering Profession has never had its due social and economic recognition. The value of the works of the engineer have long been recognized, but the responsible party, the engineer, has had little acclaim. The creator has been lost sight of in his creation. To a very great extent engineers themselves are to blame for this condition. As a class, engineers are prone to be content to busy themselves in their laboratories or with their design problems. They are content to get what enjoyment they can in dealing with inanimate things; studying and testing their properties; devising uses for them in terms of stress, strain, thermal properties, chemical properties, etc. Behaviors that can be predicted by mathematical and chemical equations are more alluring to many engineers, than dealing in human relationships where reactions are more complicated and to a greater extent unpredictable. Engineers by the nature of their work tend to become individualists, forgetting that professional development requires group thinking and group action. In other words, engineers have lacked, and some still lack, professional consciousness.

The first law for the registration of engineers was enacted in 1907. Today forty-six states have laws requiring registration of engineers as a legal qualification to practice. True, some of these laws are weak, some cover only structural engineers, and practically all of them have too many exemptions from the provisions of the Act. It is encouraging that, in several states, plans are under way to strengthen their engineering registration laws.

It required group action by engineers in the several states to get the registration laws enacted. It requires group action to have these laws administered and enforced. The Boards for the registration of engineers cannot be effective enforcement agencies — they cannot be prosecutor, judge, and jury. This has resulted in the formation of Professional Engineering Societies in the several states.

Here we see the first beneficial effect of licensing on the profession. Engineers have developed the consciousness that they are professional people and members of one profession.

A second, and perhaps the most important, beneficial effect has come out of meetings to discuss professional problems. Some of the problems being discussed are professional ethics, social and civic responsibilities, employer and employee relationships, and res-

ponsibilities, improving engineer client relationships, fair fees and salaries, the problems of engineers in public employment, the engineers' use and possible use in war, the engineer and the collective bargaining law (National Labor Relations Act), enforcement of registration laws, and developping and requiring high standards of proficiency All these discussions have helped, and are helping, to cement the engineers into a coherent professional group, to elevate ethical conceptions and practices, to improve engineering standards, and to reduce incompetency and improve personal and professional relationships.

Some non-professionally minded engineers are inclined to look upon registration as a magic medium for immediately increasing earning power. Those who have this conception, are doomed to disappointment. Registration of engineers does not, per se, increase salaries or produce higher fees. Registration is continually improving the appreciation of our profession through better public relations, improved ethical concepts and practices, higher qualifications for practice, and reduced incompetency. The effect of these has resulted in increased fees and salaries in many instances.

A number of the State Societies of Professional Engineers have published what they consider fair schedules of minimum engineering fees and salaries. There is plenty of evidence to show that these schedules are effective and bring results. In at least one case they have resulted in a revision of the state schedule of salaries for engineers in civil service and, in several cases, in an upward revision of salaries of engineers employed by cities. Obviously, such schedules, to be effective, must be fair and reasonable. Yes, registration or licensing of engineers can and does, as a secondary result, lead to improved financial status of members of the profession.

Let me summarize: Registration of engineers is, and can only be, justified as a measure to safeguard the public against the dangers of incompetent and dishonest practice of engineering. The development, passage and enforcement of the registration laws requires collective action and study by engineers, which leads to beneficial results to the profession and the professional man through higher technical proficiency, more ethical practice, better cooperation within the profession and between the professional man and his client or employer, better appreciation of the profession by the public, and the secondary result of better compensation for the professional man.

John W. Thomas, chairman and chief executive, The Firestone Tire and Rubber Company, was awarded the Honorary D.Sc. degree by the University of Akron, Ohio, on June fourth.

Spirit of Scientific Cooperation Praised

CARL B. FRITSCHE

Vice President, Reichhold Chemicals, Inc., Tuscaloosa, Alabama

IN the opinion of the writer the outstanding development in the synthetic field of the chemical industry during the war period is two-fold:

1. The amazing manner in which young chemists and young chemical engineers have undertaken and successfully discharged heavy responsibilities during this almost unbelievable period of expansion. They have been called upon to make most audacious decisions which not only involve the expenditure of hundreds of millions of dollars, but which more important determine the fate of our fighting forces.

2. The spirit of unstinted cooperation which is prevailing among the competing units of the industry as is evidenced by the liberal exchange of technical information and the reciprocal cross-licensing under patents.

The whole problem of war time development, construction, and operation of synthetic chemical plants has been approached from the point of view of business statesmanship without which the chemical phase of war supply would have failed.

Each company engaging in such cooperation has benefited immeasurably thereby. None has suffered.

The postwar benefits accruing from this war time experience likewise appear to be two-fold:

1. The synthetic chemical industry has advanced at least twenty years beyond its normal rate of progress and its young technical personnel is mentally equipped and has the courage to face postwar problems with assurance of success.

2. The individual members of the industry have come out of their cloistered shell and now recognize that instead of being widely separated individual units, they are component parts of a gigantic industry which suffers when any individual unit fails, and which makes the greatest progress when all units are successful.

This all augurs well for the future of our country and for its ambitious young men because they represent and compose an industry which is ushering in the Chemical Age.

What Licensing Could Do For the Chemist

John D. Coleman

President, Dayton Society of Professional Engineers

Presented at the Miami Valley Chapter Meeting May 11th.

WE in the technical professions have always looked with suspicion on anything with the faintest legalistic taint, and any movement bearing the slightest political implications we shunned like the plague. This probably stems from the fact that we have been trained to deal in facts and would consider it a prostitution of our profession to even present facts in just the right amount to prove a point which is the usual procedure in the legal profession. However, the time has come when we can no longer afford to indulge in the ostrich practice of sticking our individual and collective heads in the sand, denying the existence of a crisis or the need for action. Our apathy and refusal to face the fact that there is a need for unity and concerted action in common cause against the encroachments of non-professional bargaining groups is a grave threat to our acceptance and existence as a profession.

The qualifying of the professional cannot be a haphazard matter of personal opinion nor can it be intrusted to the definitions and requirements advanced by self-constituted national organizations. Regardless of your opinion and mine in the past, we must all realize now that legal recognition is the only way in which we can truly achieve professional status. This could be accomplished through extension and modification of the forty-six existing state registration laws for engineers or by new legislation. The method of approach is not so important but the provisions of such licensing acts should be carefully considered in order to maintain the control and administration in the hands of responsible members of the professions.

Thus, by state licensing, a legal distinction can be established between the truly professional individual whose chief tool is in his brain and the sub-professional whose principal tools are his hands. The professional chemist can then be sharply contrasted with the sub-professional technician who soon reaches the limit of his ability and ambition and settles down to routine repetitive determinations.

Furnished with such legal delineation and backed by an aggressive national organization, the professional chemist is in a much better position to resist the encroachment of non-professional groups and at the same time can bring about needed reforms by the same methods employed by the older organized professions.

We have only to examine and contrast the experience of the chemist inducted into the armed services with doctors and dentists to realize how far from ideal is our position and how sadly we are in need of a definite legal standing plus a strong organization to lobby for, and represent the best interests of the profession. We are lacking in realism if we do not perceive and accept the fact that now, more than ever before, our government is a compounding and blending of pressure groups essentially fluid in nature and concept and swayed usually by numerical factors alone. One well-knit organization of unquestioned legal status can represent and carry far more weight for the profession than a plurality of organizations with a much larger aggregate membership and no status under law.

State licensing and registration of chemists would also simplify the task of drawing strict lines of demarcation in the classes of membership in organizations like THE AMERICAN INSTITUTE OF CHEMISTS, the American Institute of Chemical Engineers, and the American Chemical Society, without recourse to legalistic double-talk and would insure that the voting and office holding privilege would be restricted to those individuals who, being professional chemists, should have the undiluted interest of the profession as their guiding light. All too frequently we have heard the complaint that so-called "industrial members" of some of our organizations guide and shape the policies in a manner inimical to the best interests of the profession as a whole. We need not consider the validity of these complaints but it should be self-evident that membership requirements based on legal status should not only eliminate the source of the complaint but have the effect of giving individual chemists the feeling of respect for and of responsibility to their profession and representative organization.

If state licensing and registration for chemists should result from a more or less spontaneous demand from a majority within the profession, it would have a distinct advantage over the early evolution of most of the engineering registration laws, since in the majority of cases, licensing was initiately sponsored by and was mandatory for a comparatively small group of city, county, and state employees and a few consulting or practicing engineers. From the results of surveys made in one of our sectional groups of the American Chemical Society there is a strong majority of some sixty-five per cent who now

favor state licensing for chemists. We would venture an opinion that this would be many times the percentage of engineers in Ohio, for example, who favored or even were aware of the existence of such a registration bill in the legislature in 1934 when hearings were in progress.

The mere presence of registration laws for chemists on the statute books of the forty-eight states and even a reasonable majority of the qualified chemists registered under these laws would not provide the public recognition and acceptance of the chemist as a professional man. Nor would it stop the stream of legislation, which while possibly not by intent, but in fact does discriminate against the chemist. If we are to obtain the full benefits of legal recognition we must have a strong national organization with well integrated state or regional and local groups to represent and implement the best interests of the profession.

It would also be the responsibility of such an overall organization to work for the correction of inequities affecting the welfare of members of the profession and to make sure that professional standards in employment be strictly observed. It would also be incumbent on the individual members to make sure that professional chemists are not assigned and do not attempt to carry out sub-professional work.

A code of ethics would be most necessary as a guiding light for the members of the profession and as a pledge of good faith to society. The code should cover the relationships between individuals within the profession and their attitude and responsibility to their employers and the public. We should be careful to see that such a code would not be used to cover up derelictions of members of the profession at the expense of the public, as has occurred in other professions. While I would not pretend to qualify as an authority on questions of ethics or on what a code of ethics should embrace it seems that the code adopted by the INSTITUTE is quite adequate if not exhaustive in its scope.

Another very tangible advantage to be gained from state licensing and registration laws for chemists, would be the inevitable requirement that only professional chemists would be qualified to hold positions affecting the public welfare, health, and safety. This would mean that only legally qualified chemists could fill positions as city, county, and state chemists, and waterworks and sewage-disposal control chemists, which would place chemists on the same plane as engineers, doctors, and pharmacists. The requirement that only licensed chemists and chemical engineers be in responsible charge of such operations would tend to eliminate appointments to such positions on a purely political basis which would certainly be in the public interest and would seem to involve the possibility of expanding

the field for qualified chemists and chemical engineers.

If further evidence is necessary to demonstrate the need for legal recognition and representation for the chemist, I refer you to Walter J. Murphy's editorial in the *News Edition of Industrial and Engineering Chemistry* entitled "Civil Service Snubs the Chemist". Referring to the Veterans Preferance Act of 1944, he quotes from Section 5 of this Act.

> "No minimum educational requirement will be prescribed in any civil service examination except for such scientific, technical, or professional positions the duties of which the Civil Service Commission decides cannot be performed by a person who does not have such education. The commission shall make a part of its public records its reasons for such decisions. The A. C. S. is informed that the Commission will require minimum educational qualifications in the case of medical doctors, dentists, veterinarians, teachers, nurses, and some other classifications which obviously fall within the category of scientific, technical, and professional positions, but will not demand minimum educational requirements from those who seek positions as chemists, physicists, and engineers".

At the close of the war the armed services will be returning to civilian life literally hundreds of thousands of men who will have had intensive training in very narrow highly specialized technical fields but who will have an otherwise inadequate educational background. With the trend toward liberalization or breakdown of both state and national civil service laws, in a commendable but misguided effort to aid the veterans, many of these men will be placed in positions where with the blessing of the state and national governments they will assume the work and even the title of chemists. Under such conditions a legal definition for the chemist becomes even more imperative as well as the need for united effort in the profession to combat legislation of this character.

The most frequent criticism brought forth against licensing of the chemist is that the administration of such laws tends to develop into a political racket. We believe that the fallacy of this argument can be readily discovered, if we consider the fact that we now have the opportunity to obtain any type of legislation that we desire and can use the accumulated experience in the registration of engineers to avoid pitfalls. Such legislation could insure that the licensing of chemists would be administered by professional chemists and for professional chemists and the best interests of the profession and the individual chemist would accordingly be served.

If as a result of our individual and collective efforts, we obtain universal and uniform licensing laws for chemists in all states of the Union and achieve unified national representa-

tion, preferably in some existing national organization, there would be many tasks we should set for ourselves.

First: We should make every effort to see that our colleges and universities recognize the need for broadening the vision of students in chemistry by every means at their disposal and do the same for faculty members by requiring and at least partially financing, if necessary, sabbatical leaves at intervals so that they can maintain a more or less active contact with the applied aspect of their field.

Involved in the educational side of the problem is the dire need for placing the teaching profession on a financial plane high enough not only to retain their present personnel but also to attract broadminded, well rounded intelligent people to the teaching profession who could promote and inspire a high level of professional consciousness in their students.

Second: We should demand and make sure that the public obtains a more factual picture of the chemist, and the field of chemistry. The chemist as an individual is too often publicized like a combination of a medieval alchemist and Superman with no mention of the painstaking and oftentimes monotonous series of experiments and the logical creative thought that preceded and accompanied them. Most of us have had the experience of reading newspaper and technical publication accounts of the exploits in the field of chemistry of people whom we know intimately and are astounded to find that they have been given full credit for developments which literally involved the creative efforts of dozens of men over a period of months and years. This is not only contrary to any reasonable code of professional ethics but it has the tendency to create a cynical attitude in the members of the profession towards all publicity and aggravates an existing introvert leaning in the chemist.

Third: We should individually and collectively set ourselves the task of correcting the rather general impression that to be a chemist one has to be queer. Which recalls an incident that occurred during the discussion of the results of a survey conducted by one of the local sections of the American Chemical Society, which revealed that thirty-four per cent of the reporting members were members of fraternal organizations. In the lull created by this announcement, an unidentified member of the audience remarked, "Oddfellows, no doubt". It is probable that most of this impression stems from the fact that too many of us are not at ease when out of the narrow confines of our laboratory or plant or in contact with individuals or groups outside our profession. To overcome this, the individual chemist should attach himself to and actively participate in the civic, fraternal, social and sportsman's activities of his community wherever possible and by

so doing he will not only achieve poise and increase his personal stature and vision, but obtain better recognition for his profession and forever bury the introvert spectre that has haunted us.

Fourth: We should set-up standards covering the employment of professional chemists and then police the profession to make sure that we do not have a return of conditions such as existed during and for far too long after the last depression. This would insure that professional chemists should not be offered and most certainly should not accept work on an hourly rate basis, nor at a level below the minimum established by the professional organization. They would also not be offered or undertake sub-professional work which could only provide relief of a temporary character to the individual but most certainly would be a detriment to the profession for a much longer period.

It is heartening to observe that there is a stirring within the profession and an awakening consciousness in its members of our shortcomings and needs. It is also gratifying that the INSTITUTE has again taken up the torch with renewed vigor in active support of professionalism and that members of the INSTITUTE in high positions not only are willing to back our efforts to obtain recognition but are also carrying the message personally to the various sectional groups. It would be difficult to overestimate the value and importance of such support where it is clearly evident that no personal gain could accrue from such efforts other than the gratitude and esteem of those of us who have been endeavoring to the limit of our ability and influence to promote professional recognition.

Wall Receives Pure Chemistry Award

The American Chemical Society prize in pure chemistry of $1000, will go to Dr. Frederick T. Wall, associate professor of physical chemistry at the University of Illinois. The award, made annually to encourage fundamental studies by young chemists, goes to Dr. Wall for "outstanding achievement in research, characterized by independence of thought and originality." Dr. Wall was cited for his work in thermodynamics and statistical mechanics of polymers.

Temperature Control Cabinets

Precision Scientific Company has just issued Catalog 325, which contains 48 illustrated pages pertaining to "Precision-Freas" constant temperature control cabinets, including standard models, and photographs of those built to specifications. The catalog may be obtained from the company at 1750 N. Springfield Ave., Chicago 47, Illinois.

The American Institute Of Chemists

Gustav Egloff, President, A.I.C.

Reprinted by Courtesy of the SYRACUSE CHEMIST

THE AMERICAN INSTITUTE OF CHEMISTS is an organization primarily devoted to upbuilding and maintaining the professional status of the chemist. In this respect it differs from other societies which are organized principally for the purpose of discussing and publishing scientific and technical researches. The INSTITUTE is striving to raise the prestige of the chemist to at least that enjoyed by the legal and medical professions. The general public is somewhat in awe of the chemist, but it seems to recognize him only as a sort of magician. The man on the street should be made aware of the fact that the chemist's remarkable discoveries which lead to longer and better living are the results of coupling his inventiveness with years of patient study and arduous labor rather than the result of a single flash of inventive genius.

In working towards its objectives, the INSTITUTE becomes concerned with a number of pertinent problems. One of the reasons for the chemist's lack of professional recognition is the fact that the chemist is not defined under the law. Physicians, dentists, veterinarians, pharmacists, lawyers, engineers, nurses, beauticians, and plumbers must have a license in order to practice, but anyone declaring himself a chemist is a chemist in the eyes of the law. Even the Civil Service Commission does not demand minimum educational requirements for chemists as it does for some other scientific employees.

The INSTITUTE believes that chemists should have a legally recognized status. It is promoting legislation for the licensing of chemists in many states of the Union. This movement is also important to the lay public who must be protected against quacks in this field as it is in medicine.

In addition to instigating legislation favorable to the interests of the chemist, the INSTITUTE has been active in protecting him from harmful measures. In recent years, a number of bills have been formulated which propose to regiment the scientists and technologists, to limit their intellectual freedom, and to change our present patent system in such a way as to deprive them of the fruits of

their labors. The scientific man tends to be introverted to the extent that he is hardly aware of political developments. The INSTITUTE keeps him in touch with these matters through its meetings and publications.

Another serious threat to the chemist's professional dignity is the encroachment of labor unions on his field of activity. According to the Wagner Act and the National Labor Relations Board rulings, it is legally necessary to set up organizations which can function as the required bargaining agents in all controversies involving labor relations. Because the chemist has not been organized for such activities, because of the non-recognition of the professional standing of chemists, because of the lack of a legal definition of a chemist and of a chemical technician, and because of the activities of the labor unions, it has frequently been impossible for chemists to stay out of unions in completely unionized plants. THE AMERICAN INSTITUTE OF CHEMISTS has been studying this problem in an effort to help set up organizations which truly represent the interests of chemists and which are immune to coercion from non-chemical pressure groups.

The INSTITUTE encourages high educational standards in our universities and colleges. In order to take more courses in the sciences, students often neglect cultural training and the knowledge of English, politics, and economics necessary for good citizenship. The INSTITUTE emphasizes thorough general training and leadership, as well as a good chemical education, in awarding its Student Medals.

Men of science are honored for their accomplishments in their chosen fields by other societies. The INSTITUTE also recognizes the scientist's achievements as a citizen in solving economic and social problems, and promoting the chemical profession. In choosing the recipient of its annual Gold Medal Award, these factors are primary.

To maintain professional dignity, the chemist must be known as a man of real integrity. High ethical standards are as important to the chemist as to the physician. The INSTITUTE requires its members to adhere to its "Code of Ethics" which includes principles of honesty in the chemist's relations with his fellow workers, employers, clients, and the general public.

The INSTITUTE was organized in 1923 and incorporated in 1926. Its membership of over 2,000 chemists includes many eminent scientists and industrial leaders. Members are found in all sections of the country and eleven chapters, Baltimore, Chicago, Los Angeles, Louisiana, Miami Valley, New York, Niagara, Northern Ohio, Philadelphia, Washington, and Western Pennsylvania, are active.

The INSTITUTE has secured the full-time services of Arthur Schroder

as executive director. He has recently been evaluating patents seized from the Axis powers by the Alien Property Custodian. He is managing editor of *The Chemical Bulletin,* publication of the Chicago Section of the American Chemical Society, and vice-chairman of that Section. His appointment as executive director of the INSTITUTE marks an important step in increasing the tempo with which the objectives will be pursued.

The objectives of the INSTITUTE are approached through many activities. Each local chapter holds frequent meetings at which a program dealing with professional problems of the chemist is emphasized. At these, a speaker or speakers well versed in the subject are heard, and members and guests participate freely in the ensuing discussion. A national meeting is held annually. (Due to wartime conditions, the 1945 meeting has been cancelled.) A number of committees, Economic Welfare, Ethics, Licensing, National Legislation Affecting Chemists, Patents, Professional Relations, Professional Status, Public Relations, Qualifications, and Unemployment, study the problems which must be solved to bring about professional advancement, and work toward their solution. The monthly journal, *The Chemist,* publishes proceedings of the meetings, reports of the committees, national professional news, articles, and monthly accounts of professional activities. Local chapters award a number of Student Medals to seniors majoring in chemistry at educational institutions of recognized standing. The national organization each year awards its Gold Medal for "noteworthy service to the science of chemistry or the profession of chemistry in America."

The quality of the membership of the INSTITUTE is excellent, for admission standards have been kept at a high level. The provisions for membership are as follows:

The membership of the INSTITUTE shall consist of (1) Life members, (2) Fellows, (3) Members, (4) Associates.

All Members of THE AMERICAN INSTITUTE OF CHEMISTS shall be citizens of the United States of America.

Fellows shall consist of those who have had a minimum of six years of collegiate and post-graduate work in chemistry or chemical engineering, at least two years of which training must be of an advanced nature, in an educational institution accredited by the Council, and an additional five years of progressive experience and responsibility in the practice of the profession. In lieu of the two years of collegiate work *beyond* the bachelor's degree, the Council is empowered to award Fellowship to those who can demonstrate adequate experience in the practice of the profession. For this the application should submit attested endorsements regarding the time and

the type of experience including references to patents, published articles, etc.

Members shall consist of those who have had four years of collegiate work in chemistry or chemical engineering, leading to a Bachelor degree in an educational institution accredited by the Council and in addition three years of progressive experience, or training, in the practice of the profession, or can demonstrate to the satisfaction of the Council that they have the equivalent thereof.

Associates shall consist of those who have had four years of collegiate work in chemistry or chemical engineering in an educational institution accredited by the Council and shall have been graduated with a Bachelor degree.

The Council is empowered to consider and accept qualifications other than those above set forth and to provide such means of ascertaining the qualifications of prospective members as it may deem desirable, or as the INSTITUTE shall direct.

The annual dues are $10.00 for Fellows, $7.00 for Members, and $4.00 for Associates. The Life Membership is $100.00. The dues for all memberships include a subscription to *The Chemist*.

Further information can be obtained from Mr. H. S. Neiman, Secretary of THE AMERICAN INSTITUTE OF CHEMISTS, whose national headquarters are at 60 E. 42nd Street, New York 17, N. Y.

Student Medalists – 1945

Student medals were awarded by three Chapters of THE AMERICAN INSTITUTE OF CHEMISTS to outstanding college students in their areas, "in recognition of leadership, excellence in scholarship, and character."

The Chicago Chapter awarded medals to the following students: Raymond Baddour, University of Notre Dame; Edward Daub, University of Wisconsin; Betty Holmes, Purdue University; Clarence Kolzow, Central Y. M. C. A. College; Sylvia Koral, University of Chicago; Glenn Marsh, Illinois Institute of Technology; Eugene Maun, University of Illinois, and Isabelle Ryden, Northwestern University.

The New York Chapter presented medals to Sheldon Cohen, New York University at University Heights; R. C. Countryman, Rutgers University; Bernard J. Gildea, Fordham University; Dinah Green, Brooklyn College; Zelda Halpern, New York University at Washington Square; Lawrence Kushner, Queens College; William F. Linke, College of the City of New York, and Richard Stein, Polytechnic Institute of Brooklyn.

The Washington Chapter awarded medals to Dorothea R. Simmons, Howard University, and Richard F. Wallis, George Washington Universtiy.

Each of these student medalists was also presented with Associate membership in THE AMERICAN INSTITUTE OF CHEMISTS for one year.

Reid Presented with Honorary Membership

Dr. E. Emmet Reid, professor emeritus of chemistry in the Johns Hopkins University, was awarded the scroll of honorary membership in THE AMERICAN INSTITUTE OF CHEMISTS at the annual meeting and banquet of the Baltimore Chapter held in Baltimore on May 24th.

Presentation of the membership scroll was made by Chairman A. H. Warth on behalf of President Egloff, who wrote that Dr. Reid's interests have extended beyond the field of pure chemistry, and that he has successfully filled the roles of scientist, industrialist, inventor, teacher, and humanitarian. During the past three decades, he has served as consultant to some of the largest industrial concerns in the United States.

Dr. Walter A. Patrick, professor of physical chemistry at Hopkins, who has been a contemporary of Reid's spoke of his career and also gave a brief summary of the metamorphosis of Hopkins and the role that Dr. Reid played in the first era which was dominated by Remsen, Morse, and Jones. This was the era of experimentation; Remson having brought the methods of experimentation over from Europe. The second era brought to the fore Frazer and Reid, and this era too was an experimental era for Hopkins, Frazer measuring the various properties of solutions, and Reid working in synthetic organic chemistry.

Later it was thought that the Chemical Department should branch out from the pure experimentation into the theoretical field. Drs. Frazer and Reid invited other younger men to take up this new field. The third era ushered in men such as Ott, Anderson, Harker, and others, who were invited to come to Hopkins to contribute to this new field. However, as far as an experimenter is concerned, Reid has no peer.

Dr. Reid obtained the A.B. degree at Richmond College. After that he lectured for a few years and later, in 1898, was given the Ph.D. at Hopkins. He then taught for about ten years, did research at Colgate for three years, but came back to Hopkins in 1914, where he was professor until 1937, and since then has been professor emeritus.

Dr. Reid has published 150 scientific papers, identified and classified some 2000 chemical compounds. He is the author of a textbook of *Organic Chemistry* and translated one of the foreign texts on *Catalysis*. One of the most outstanding characteristics of Dr. Reid, the man, is unselfishness. An interesting example given by Dr. Patrick was that he, Patrick and others had tried for twenty years to spike Reid's ginger ale, but never could break down his inherent good-

ness. As stated by one of Dr. Reid's former students, he was the most beloved man in the Chemical Department at Hopkins.

Dr. Reid stated that the only thing for which he claimed credit was that he did not stand in the way of his students in their aims to get ahead and to achieve success.

Surplus Property Disposal

The Reconstruction Finance Corporation, Surplus Property Division, announces that it has available some material usable in the chemical industry.

Listed in the present inventory are approximately 70,000 lbs. of sulphur, 2,000 lbs. of methanol, and small quantities of ammonium carbonate, ammonium bromide, zinc chloride, sodium phosphate (anhydrous), potassium chromate, benzedine and barium chloride. The latter are packed in bottles in size from 1 to 8 oz. Also included are a limited quantity of pH test paper and small vials of alizarin red S, azocarmine B, tyrosine, and other materials.

The machinery inventory contains such items as caustic scrubbing towers, drying machines, thermal driers, lead-lined, glass-lined and stainless steel tanks, anodizing and plating equipment, and Haveg tanks.

Due to the regional sales policy of the RFC, all purchasers must do business through the regional office that services their territory. Regional offices are located in Atlanta, Boston, Charlotte, Chicago, Cleveland, Dallas, Denver, Detroit, Houston, Kansas City, Los Angeles, Minneapolis, New Orleans, New York, Omaha, Philadelphia, Portland, Richmond, St. Louis, Salt Lake City, San Francisco, Seattle, and San Antonio.

The New York agency has a form which lists the commodities available. Those interested in being placed on the mailing list should fill out this form, which may be obtained by requesting it from the R.F.C. at 70 Pine Street, New York 5, N. Y., in person or by letter.

Levin Transferred

Ernest M. Levin, M. A. I. C., formerly analytical chemist for the National Bureau of Standards, San Francisco, has been transferred to the Lime and Gypsum Section of the Bureau of Standards, Washington, D.C., with the title of assistant physical chemist.

R. T. Milner, F.A.I.C., has been elected second vice president of the American Oil Chemists' Society. He is head of the analytical and physical chemical division of the Northern Regional Research Laboratory, Peoria, Illinois.

Moore on Professional Status

Robert J. Moore, F.A.I.C., technical co-ordinator of the Bakelite Corporation, addressed two chapters of THE AMERICAN INSTITUTE OF CHEMISTS on the subject, "A Plastics Chemist Discusses the Profession." On April 25th the lecture was before the Northern Ohio Chapter, held at the Engineers' Club in Cleveland, with Mr. Henry Frank, chairman. The next evening the address was before the Miami Valley Chapter, at the Dayton Engineers' Club, with Dr. E. L. Luaces, chairman.

Dr. Moore reviewed today's plastics industry and emphasized its impact on many other American industries in connection with postwar industrial well-being. While the chemist plays an all-important part in this advancement, he must not neglect the welfare and professional status of his profession. State licensing for chemists was advocated as providing the best means to this end. Of all the professions—legal, medical, architecture, engineering, etc.—the chemist alone is without legal definition or professional licensing. Dr. Moore reviewed the program of THE AMERICAN INSTITUTE OF CHEMISTS toward this end.

Dr. Johan Bjorksten, F.A.I.C., announces that the Bjorksten Laboratories have moved into larger quarters at the same address, 185 N. Wabash Avenue, Chicago 1, Illinois.

Whitmore Awarded Willard Gibbs Medal

The Willard Gibbs medal of The American Chemical Society is awarded this year to Dr. Frank C. Whitmore, dean of the School of Chemistry and Physics at Pennsylvania State College. The award is made for his "outstanding contributions to organic chemistry" in connection with his direction of war research work on aviation fuels, explosives, lubricants, antimalarials, synthetic rubber, penicillin, silicones, and airplane camouflage.

E. L. Luaces, F.A.I.C., president of Chemical Developments Corporation, Dayton, Ohio, has been appointed chairman of the Committee on Public Relations of the Dayton Society of Professional Engineers.

The United States Sugar Corporation has been granted a loan from the RFC of $7,500,000 for a starch plant at Clewiston, Florida. The plant will start operations in July and is expected to employ 2,500 persons. The starch will be made from sweet potatoes.

Dr. Ralph T. K. Cornwell, director of research, The Sylvania Industrial Corporation, Fredericksburg, Va., has recently been elected to the Board of Directors of that Company.

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May Meeting

THE 220th meeting of the National Council of The American Institute of Chemists was held on Friday, May 4, 1945, at 6:30 p.m. at The Chemists' Club, 50 East 41st Street, New York, N. Y., with President Gustav Egloff presiding.

The following officers and councilors were present: Messrs. G. Egloff, F. A. Hessel, W H. Hill, R. E. Kirk, F. O. Lundstrom, H B. McClure, J M. McIlvain, R. J. Moore, J. F. Muller, H. S. Neiman, E. H. Northey, A.Schroder, F. D.Snell, A. L. Taylor, M. Toch, and W. D. Turner. Miss V. F. Kimball and Mr. T. S. McCarthy were present.

The minutes of the preceding

meeting were approved.

The Treasurer's report was read and accepted.

The annual report of the Auditor was read and accepted.

Mr. Schroder as new executive director of the INSTITUTE was introduced to the assembled councilors.

The secretary presented two letters from veterans' advisement bureaus which requested vocational information. Dr. Snell moved that these be laid on the table. Mr. Schroder suggested that by providing such information, it might assist us in obtaining recognition of the fact that certain qualifications are necessary before a person may call himself a chemist.

Discussion took place regarding Senate Bill 55 in the Illinois State Legislature, an amendment of the Civil Service Act of that State, which waives educational qualifications for chemists who are returned service men.

Upon motion made and seconded, the letters requesting vocational information were referred to Mr. Schroder.

Dr. Lundstrom read a letter to the Council containing suggestions for INSTITUTE activities.

Dr. Egloff stated that we do not get enough suggested actions from our membership and from the various Chapters.

A report from the New York Chapter of the INSTITUTE was read, which had been circularized to the councilors before the meeting, and a brisk discussion followed.

Upon motion made and seconded, it was decided to appoint a Committee to consider the suggestions of the New York Chapter and to report recommendations to the Council. The President appointed the following Committee to consider the New York Chapter Resolution: Chairman, Dr. E. H. Northey; Dr. J. M. McIlvain, Dr. M. L. Hamlin, Dr. F. D. Snell, and Dr. G. L. Royer.

Dr. Kirk suggested that members in the INSTITUTE continue their work on legislation and write articles on the subject of desirable legislation.

Mr. Schroder presented the suggestions contained in the letter of April 26, which was sent to each member of the Council. Discussion took place on each subject. During the discussion of licensure, it was emphasized that Chapters of the INSTITUTE must be formed in each separate state, if the INSTITUTE is to attempt to get licensure established in any given state. Chapters now containing members in more than one State must be divided so that each separate state contains its own Chapter.

Discussion took place on the definition of "chemist" and its definition in the proposed act to license chemists in New York State was read.

It was suggested that a lecture

bureau be formed, and that chemists speak before the various chapters. It was also proposed that a more uniform program of subjects be covered by the Chapters each year, and that the Chapter activities be coordinated with a central program.

Additional suggestions were made for articles in THE CHEMIST on subjects such as public speaking, chemical economics, advice to students, etc. Readers are requested to send in suggestions for material which they may wish to read. Dr. Lundstrom recommended that THE CHEMIST carry more professional articles. Dr. Moore stated that one type of article which the young chemist needs is a series to show him what industries and what chemical fields he can go into. Universities should have lecturers who would talk to chemistry seniors to give them a picture of the various fields open in chemistry. It was also suggested that a "Letter to the Editor" column be maintained where chemists would be invited to express their ideas. Dr. Egloff emphasized that THE CHEMIST is a forum for the members and that they should be encouraged to participate in it.

Upon motion made and seconded, the following new members were elected:

Fellows

Burrell Harry
Research Supervisor
Heyden Chemical Corporation
Garfield, New Jersey

Cressman, Howard W. J.
Research Chemist
E. F. Houghton and Company
303 West Lehigh Avenue
Philadelphia 33, Pennsylvania

Dawson, David H.
Assistant Technical Director
Pigments Department
E. I. du Pont de Nemours and Company
256 Vanderpool Street
Newark 5, New Jersey

Dellinger, Howard H.
Chief Chemist
Atlas Refinery
Socony-Vacuum Oil Company, Inc.
503 Elk Street
Buffalo 5, New York

Feinstone, W. Harry
Director Research
Pyridium Corporation
Yonkers, New York

Gans, David M.
Technical Director
Quaker Chemical Products Corporation
Conshohocken, Pennsylvania

Kipnis, Frank
Research Organic Chemist
Publicker Commercial Alcohol Company
Mifflin and Swanson Streets
Philadelphia 48, Pennsylvania

Major, Randolph T.
Director of Research
Merck and Company, Inc.
Rahway, New Jersey

Masten, Margaret H.
Lecturer
Department of Chemistry
University of Southern California
Los Angeles 7, California

Schaaf, Karl D.
Head Chemist
Enoz Research Laboratory
Division of Enoz Chemical Company
1140 South Michigan Avenue
Chicago 5, Illinois

Schatzel, Rudolph A.
Director of Research
General Cable Corporation
Bayonne, New Jersey

Tipson, Robert S.
Senior Research Fellow
Dept. of Research in Pure Chemistry
Mellon Institute
Pittsburgh 13, Pennsylvania

Waters, Kenneth L.
Fellow, Department of Pure Research
Mellon Institute
Pittsburgh 13, Pennsylvania

Members

Graff, Alan R.
(M.1945), *President*
The Columbia Malting Company
141 West Jackson Boulevard
Chicago 4, Illinois

Milner, Arthur
(M.1945), *Chemist*
Firestone Tire and Rubber Company
2525 Firestone Boulevard
Los Angeles 54, California

Lukat, Robert T.
(M.1945), *Chief Chemist*
Commercial Solvents Corporation
Sterlington, Louisiana

Schaar, Edward H.
(M.1945), *Assistant to President*
Schaar and Company
754 West Lexington Street
Chicago 7, Illinois

Spielman, H. Russell
(M.1945), *Research Chemist in Synthetic Rubber*
Witco Chemical Company
6200 West 51st Street
Chicago 38, Illinois

Associate

Gozlow, Frank J.
(A.1945) *Chemist*
Atlantic Refining Company
3144 Passyunk Avenue
Philadelphia, Pennsylvania

Upon motion made and seconded, Hillary Robinette, Jr., was raised from Member to Fellow.

Upon motion made and seconded, Gordon P. Whitcomb was raised from Member to Fellow.

Upon motion made and seconded, it was decided that the various Chapter Constitutions should be referred to the Committee on Constitutional Revision for review and possible selection of a type of uniform constitution for all chapters.

There being no further business, adjournment was taken.

Gilliland Receives Baekeland Medal

The Leo Hendrik Baekeland Medal, of the North Jersey Section of The American Chemical Society, was awarded this year to Dr. Edwin R. Gilliland, professor of chemical engineering at Massachusetts Institute of Technology. The Baekeland medal and $1000 is presented biennally to an American chemist under forty for accomplishments in pure or industrial chemistry.

Professor Charles J. Moore, chairman of the Chemistry Department of Hunter College, New York, N.Y., for the past twenty-four years, will retire as of September first.

CHAPTERS

Baltimore

Chairman, Walter H. Hartung *Vice-chairman,* Rev. E. S. Hauber, S.J.

Secretary-treasurer, J. E. Erdman

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Council Representative, Maurice Siegel

Alternate, J. H. Muller

News Reporter to THE CHEMIST, Ralph W. Lamenzo

THE annual meeting of the Chapter was held May 24th featuring the election of officers for the coming year, and the presentation of the scroll of Honorary Membership in THE AMERICAN INSTITUTE OF CHEMISTS to Dr. E. Emmet Reid. The account of the presentation appears among the news items in this issue of THE CHEMIST.

In addition to the officers shown above, the following Chapter councilors were elected: Dr. A. H. Warth (ex-officio), Mr. R. W. Lamenzo, and Mr. E. M. Hanzely.

Chicago

Chairman, H. R. Kraybill *Vice-chairman,* F. B. Burns

Secretary-treasurer, Charles L. Thomas

Universal Oil Products Company

Riverside, Illinois

Council Representative, Martin de Simo

THE Chapter met June first and elected the officers shown above for the coming year.

Dr. Ward V. Evans, retiring chairman of the Department of Chemistry at Northwestern University, was unanimously selected as the next recipient of the Chapter's Testimonial award.

Mr. Arthur Schroder outlined the objectives which he plans to try to attain for the INSTITUTE. Among these were statutes in each state in the United States, providing for the licensing of chemists. This introduced the work of the Chapter officers, Dr. Egloff and Mr. Schroder, on licensing chemists in Illinois.

Mr. Schroder reported that House Bill 719, relating to the Practice of

Professional Chemistry in Illinois, has been introduced as a result of their efforts.

The provisions of the bill were discussed in considerable detail, after which the Chapter went on record as favoring the bill. A few members refrained from voting, but there were no dissenting votes.

Los Angeles

Chairman, Albert Salathe *Vice Chairman,* Henry W. Greenhood
Secretary, Major J. B. Ficklen
L. A. C. Health Department
808 N. Spring Street, Los Angeles, Calif.
Treasurer, E. B. Henderson
Council Representative, R. J. Abernethy
News Reporter to THE CHEMIST, J. B. Ficklen

THE April meeting of the Chapter was held April 19th, at Taix French Restaurant, 321 East Commercial, Los Angeles. Dr. Albert Salathe was in the chair. The minutes of the previous meeting were read and accepted. The Treasurer's report was read and accepted.

The Chapter's representative, Mr. R. J. Abernethy, advised there was no report of his committee now. The report of the Committee on the investigation of cost of secretarial work was read and accepted with thanks by the Chair. On the motion of one of the Committee members, Mr. Abernethy, the committee was discharged.

Committee on By-Laws

Mr. Henning, Committee chairman, discussed certain modifications in the By-Laws which had been suggested since the last meeting. After discussion, suitable modifications were adopted, and on the motion of Mr. Greenhood the By-Laws were adopted. The Chair moved that a vote of thanks be given to Mr. Henning for his activity in drawing up the By-Laws. By-Laws become effective thirty days from the date of this meeting.

The Chair reported that the yearly report of the activities of the Los Angeles Chapter had been forwarded to the Editor of THE CHEMIST.

The Licensing Committee reported that a meeting of the Committee had been held. A start had been made to find out what other successful licensing groups had been doing. A written report of findings was requested for the next meeting. The Chair reported two interim Executive Committee meetings, one which involved a discussion of the contemplated By-Laws which facilitated the adoption of the By-Laws at the present meeting: and the second Executive Committee meeting which passed resolutions;

(1) That every committee must have a chairman who is responsible to the Executive Committee.
(2) Each committee, through its chairman or representative, must bring in a definite program and give a list of personnel on his committee at a specified time set by the Executive Committee.

The meeting then adjourned.

Louisiana

Chairman, D. F. J. Lynch *Vice-chairman,* C. S. Williamson, Jr.
Secretary-treasurer, J. David Reid
Southern Regional Research Laboratory
2100 Robert E. Lee Boulevard
New Orleans 19, Louisiana
Council Representative, Harold A. Levey
News Reporter to THE CHEMIST, Helen M. Robinson

Miami Valley

Chairman, E. L. Luaces *Vice-chairman,* J. M. Purdy
Secretary-treasurer, John R. Fisher, Jr.
Chemical Developments Corporation
1771 Springfield Street, Dayton 3, Ohio
Council Representative, Harvey G. Kittredge

A MEETING of the Miami Valley Chapter was held at Deshler-Wallick Hotel, Columbus, Ohio, on the afternoon of May 11th, at which a program of talks on professional subjects was given. These papers appear in this issue of THE CHEMIST.

Inasmuch as the Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS was not held this year, the National Council of the INSTITUTE delegated to the Miami Valley Chapter the presentation of the INSTITUTE's gold medal to Mr. John W. Thomas.

The medal presentation dinner was held on the evening of May 11th, at the Deshler-Wallick Hotel, and was preceded by a reception given by The Firestone Tire and Rubber Company.

The banquet hall was beautifully decorated with flowers and INSTITUTE emblems, and an orchestra played for the occasion. There, more than 175 persons attended the dinner, received attractive souvenir programs,

and witnessed the medal presentation to Mr. John W. Thomas. The presentation speeches and Mr. Thomas' acceptance address appear elsewhere in this issue of THE CHEMIST.

On May 12th, those members of the INSTITUTE who were in Akron, Ohio, were guests of The Firestone Tire and Rubber Company at a luncheon and preview of the new Firestone research laboratories.

New York

Chairman, A. Lloyd Taylor *Vice-chairman,* Lloyd W. Davis

Secretary-treasurer, John J. Miskel

National Oil Products Company

Harrison, New Jersey

Council Representative, Elmore H. Northey

News Reporter to THE CHEMIST, Arthur De Castro

A MEETING of the Chapter was held April 27th, at which Dr. Alexander O. Gettler, professor of toxicology of the Medical College of New York University, and toxicologist to the Chief Medical Examiner's Office, New York, N. Y., spoke on "Contributions Chemistry has made in the Detection of Crime." At this meeting, student medal awards were presented by the New York Chapter to eight students selected from colleges and universities in the Metropolitan area.

At a meeting held on May 25th, Wanda K. Farr of the research division of the Celanese Corporation of America, spoke on the "Utilization of Plant Cell Membranes." Her talk will appear in a later issue of THE CHEMIST.

In addition to the officers shown above, Dr. John E. Schott was elected Chapter councilor for a three-year term.

Niagara

Chairman, Raymond G. Brown *Vice-chairman,* Wilmer H. Koch

Secretary-treasurer, F. L. Sievenpiper

National Aniline Division

Allied Chemical and Dye Corporation

Buffalo, New York

Council Representative, James Ogilvie

Reporter to THE CHEMIST, M. R. Bhagwat

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Chairman, Henry F. Frank *Vice-chairman,* Robert B. Waters

Secretary-treasurer, M. Paul Hofmann

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Council Representative, Charles W. Rippie

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Council Representative, John M. McIlvain

Washington

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Arlington, Virginia

Council Representative, Walter J. Murphy

Reporter to THE CHEMIST, T. H. Tremearne

Western Pennsylvania

President, Henry G. Goodman, Jr. *Vice-president,* Henry F. Smyth, Jr.

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The story of penicillin is written in an interesting and dramatic manner, with the use of the arts of vignette and flash-back. Biochemical products and the sulfa drugs are presented in an informative manner that assumes and suggests a knowledge of pathology and biology in the reader. The style is popular and well-done.

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THE ORGANIC CHEMISTRY OF SULFUR. By Chester Merle Suter. *John Wiley and Sons*. 858 pp. 5½"x8¾". $10.00

The author, director of chemical research for Winthrop Chemical Company, has prepared an excellent compendium of published data on the organic derivatives of sulfuric acid, with extensive references.

Pertinent data on topics of immediate interest are the absorption of petroleum gases in the production of alcohols. The sulfa drugs are unfortunately not adequately treated.

Of general interest is the systematic treatment of the sulfuric esters and sulfonic acids, with properties, reactions, derivatives and methods of preparation.

This book is encyclopedic and well-worth its price as a guide to the literature.

John A. Steffens, F.A.I.C.

Volume 1, Number 1, of *Polymer Bulletin* has just been issued by Interscience Publishers, Inc. New York, N. Y. It will be published bimonthly with the cooperation of the Bureau of High Polymer Research of the Polytechnic Institute of Brooklyn. Its purpose is to provide a medium for the dissemination of information on developments and research in the field of high polymers. Contributions are invited from readers. Paul M. Doty is editor. The subscription price is $2.40 a year.

The Committee on International Economic Policy, 405 West 117th Street, New York 27, N. Y., has issued a pamphlet on "Preferences and Discriminations in International Trade" by Dr. Howard P. Whidden, Jr. Copies are available from the Committee at ten cents each.

New Publication Schedule

THE CHEMIST, formerly published nine months a year, is now on a twelve-months schedule, with issues for June, July, and August added.

Planned for summer publication are the following articles, among others: "The Effect of Selective Service on the Training of Engineers and Chemists" by Dr. James R. Withrow, F.A.I.C., chairman, Department of Chemical Engineering, Ohio State University; "The Non-Technical Education of Chemists" by R. W. Gerard, professor of physiology, University of Chicago; "The Chemistry of Ancient Embalming" by Simon Mendelsohn, F. A. I. C., and also a proposed act for the licensure of chemists, professional news, and activities.

H. R. Kraybill, F.A.I.C., with Julius J. Nagy, and B. W. Beadle, has published an article on "Use of Dried Air in the Active Oxygen Method of Determining Relative Stabilities of Fats", in *Oil and Soap* for May. Also in the same journal, is an article by W. R. Catlow, Jr., F.A.I.C., on "Synthetic Resins and the Drying Oils."

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Chemistry never takes anything for granted. The industry's motto in Sophocles' (445 B.C.) words might well be: "One must learn by doing the thing; for though you think you know it, you have no certainty until you try."

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Dr. James B. Conant . . . recently said . . . "The future of science will be determined by our basic educational policy . . . I am going to make a specific suggestion . . . that the federal government institute a national scholarship program for young men who give promise of becoming leaders in science and technology.

—*Witcombings*
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Interchemical Review, published by Interchemical Corporation, New York, Features in its Spring issue articles on "Specification of Color", "Active Chlorine Compounds", and "Microanalysis — Development and Use."

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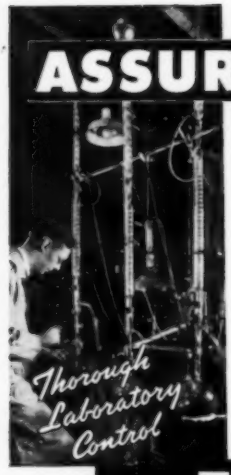

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References: "Industrial and Engineering Chemistry." Anal. Ed., Vol. 8, No. 6, page 451, and "Industrial and Engineering Chemistry", Vol. 26, pages 1169 and 1213.

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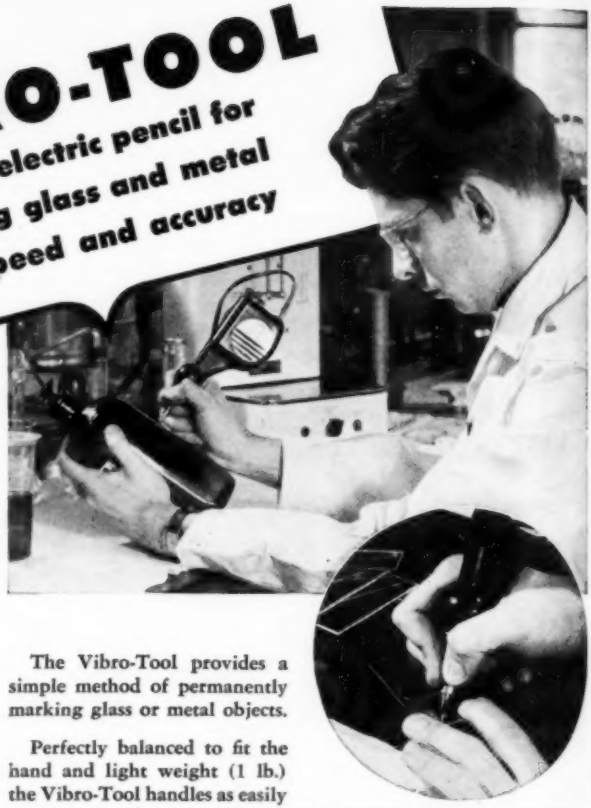

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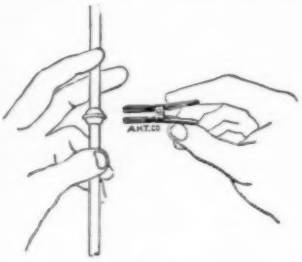

Fig. 1

Showing appearance of Sizes 12 and 18 and method of attaching to joints. Parts held securely by spring upon release of finger pressure.

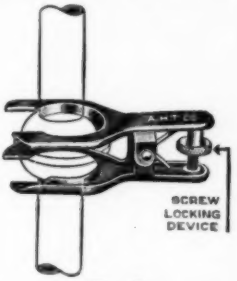

Fig. 2

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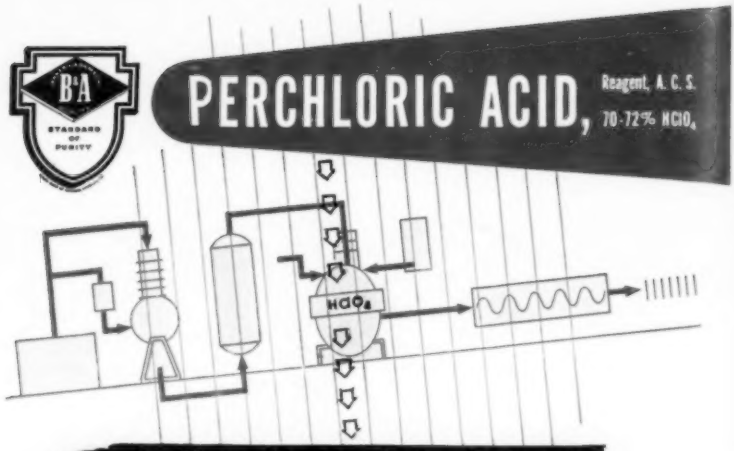

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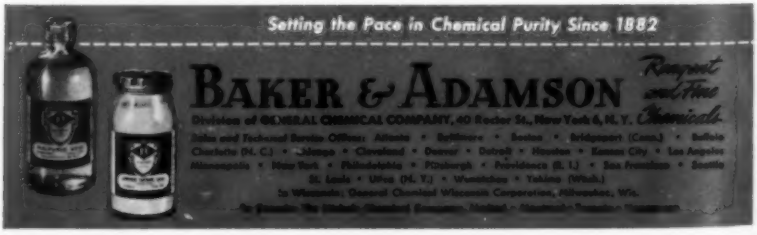
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